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By the Same Author
**THE MECHANICS OF
THE DIGESTIVE TRACT**

An Introduction to Gastroenterology

SECOND EDITION

WITH 100 ILLUSTRATIONS

PAUL B. HOEBER, INC., PUBLISHERS

NERVOUS INDIGESTION

"Adios, my dear Hooker; do be wise and good, and be careful of your stomach, within which, as I know full well, lie intellect, conscience, temper, and the affections."—Charles Darwin.

"The Lord may forgive us our sins, but the nervous system never does."—William James.

"The sorrow which has no vent in tears may make other organs weep."—Maudsley.

"I have not, now, nervous energy enough for stomach and brain both, and if I work the latter, not even the fresh breezes of this place will keep the former in order."—Thomas Huxley.

NERVOUS INDIGESTION

BY

WALTER C. ALVAREZ, M.D.

Associate Professor of Medicine, University of Minnesota
(The Mayo Foundation) ; Associate in Section in Division
of Medicine, The Mayo Clinic, Rochester, Minnesota ;
Author of The Mechanics of the Digestive Tract.

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TO
H. S. A.

"What do you write?" said Gobind.

"I write of all matters that lie within my understanding, and of many that do not.

"Even so," said Gobind . . . "Tell them first of those things that thou hast seen and they have seen together. Thus their knowledge will piece out thy imperfections. . . ."

—Kipling.

PREFACE

A FEW years ago I wrote an article on the treatment of nervous indigestion which appeared to meet with widespread approval if only because, as several physicians told me, it put into words some of the thoughts which they had long wanted to express. Many wrote asking for reprints for themselves and for friends, assistants, interns, and patients, and as a result my supply was soon exhausted. More recently, when a similar response was elicited by an article on the effects of emotion on the digestive tract it occurred to me that it might be worth while to amplify these two papers and to republish them in book form, together with some chapters on the diagnosis of "functional" and obscure types of indigestion, and on the handling of the nervous patient.

That the field here dealt with is an important one can be seen from the fact that more than half of the persons who go to a physician for advice in regard to chronic indigestion have symptoms which appear to

be largely "functional" in nature. That the field is a neglected one in medical schools should be evident to anyone who has recently made ward rounds or who has attended seminars, lectures, or clinics. The younger generation of medical teachers today are mainly interested in the biochemistry of serious disease; if they are all that their superiors and moneyed benefactors expect them to be, they are forward-looking research workers, and their natural tendency must always be to show to their classes those forms of rare organic disease in which they happen to be particularly interested.

As time goes on it seems probable that most teachers of medicine will step directly from the laboratory into the professorial chair, and as a result there will be fewer and fewer of them with any knowledge of medicine as it is practiced in a downtown office, with patients from the middle and upper classes. This will be unfortunate because most of the students in our universities are going out into private practice, and I think they should be prepared for the fact that they will there meet with human beings and problems different from those encountered in clinic and ward. They will

have to learn to handle patients who are more sensitive, more refined, and more intelligent than those to whom they have been accustomed; they will see many more with minor complaints and with the obscure beginnings of disease, and they will learn that in the practice of medicine there are many things more important than the giving of drugs.

It seems to me that as time goes on more provision will have to be made for acquainting medical students with the problems that they are going to meet in practice, and particularly with the difficulties involved in treating the nervous patient. I doubt if teachers of medicine realize how seldom it occurs to them to spend an hour in the amphitheater talking about "functional" disease. So long as the wards are full of men and women with easily demonstrable ulcers and cancers why should the professor waste time showing patients in whom lesions cannot be found, and why should he go out of his way to admit to the students that there are many cases in which he cannot make a definite diagnosis?

But if the professor of medicine and the instructor in gastroenterology do not care

to demonstrate nervous patients to the students, who will? If we turn to the professor of neurology we will probably find that he is just as bad as the others. He is so interested in the fine points of locating and diagnosing brain tumors and other serious lesions that it would hardly occur to him to present to the class a simple "neuro" who hasn't a Babinski or a Romberg or a square inch of anesthetic skin to show for himself. The professor of psychiatry could give the students much help in understanding nervous patients but he too is interested in other things, and besides, most psychopathic persons with indigestion would fear the stigma of having anything to do with a specialist on insanity.

If these conditions continue I fear that every year more and more students will graduate from even our best universities well equipped with information about the rarer diseases, which they will seldom encounter, and woefully unprepared to deal with the functional troubles which they will see several times a day. Furthermore, they will have learned much of the science of medicine but little if anything of the art.

This will be bad enough, but suppose now that one of these young graduates, realizing his limitations and wishing to get some of his nervous patients into good hands, goes hunting among his colleagues for one who can help him. Will his quest be easy? I am afraid not. Most of the neurologists and psychiatrists will be interested in other problems, and those who may try to help him may not be fitted temperamentally for the work that has to be done. I wonder if there is not need today for a new speciality to be practiced by men of S. Weir Mitchell's stamp who will devote themselves to the care of those nervous patients now wandering about in a sort of no man's land. These practitioners will have to be born with a liking for the work and a special fitness for it, and they will need the widest training in medicine so that they will always be sane and not likely to make the mistake of hanging on to patients who could more easily be cured by the surgeon.

As Cabot points out, much of the work might perhaps be done by trained social workers who could go to patients' homes and places of work and there help them in changing the conditions that have produced

disease. Many is the time, even with well-to-do patients, that I have had to go to a social worker for advice, and often I have wished I could turn the invalid over to some able woman with more skill and training and time than I had to struggle with the non-medical problems involved.

WALTER C. ALVAREZ.

Rochester, Minn.

July, 1930.

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CHAPTER I

WAYS IN WHICH EMOTION CAN AFFECT THE DIGESTIVE TRACT

“. . . The thought whereof
Doth, like a poisonous mineral, gnaw my inwards.”
Shakspeare, Othello.

“I feel such sharp dissension in my breast,
Such fierce alarums both of hope and fear,
As I am sick with working of my thoughts.”
Shakspeare, Henry the Sixth.

“. . . Joseph made haste, for his bowels did yearn
upon his brother;”
Genesis, 43:30.

“The wulf shate* thryce for the grete fere that
he had.”

Caxton's edition of Aesop's Fables.

* Defecated.

NERVOUS INDIGESTION

CHAPTER I

WAYS IN WHICH EMOTION CAN AFFECT THE DIGESTIVE TRACT

WHAT does a physician mean when he says that a patient has nervous indigestion? Just how does the tired brain produce distress in the abdomen? My interest in this question dates back some fifteen years to a day when I was studying the intestinal movements of a man with an opening through the abdominal wall into the first portion of the small bowel. A small balloon, connected by rubber tubing to a tambour, was passed into the bowel and with it I was able to record every movement that took place. As I sat by the bedside watching the record as it unfolded itself on a smoked drum, I noticed a sudden rise in the level of the tracing and an increase in the amplitude of the contractions, and looking about for some cause I heard the rumble of the steam table as it came down the hall bearing the patient's luncheon. He was hungry

and had heard it first. This sudden increase in the activity of the bowel, coincident with the arrival of luncheon, was observed on two other occasions. Peristalsis was more active also when the man sat up and fed himself than when I made him lie quiet and got a nurse to feed him. Although the nurse was not unattractive, something about her ministrations annoyed him and took away much of his pleasure in eating.

Shortly afterward I studied another man with a similar opening into the bowel and one day when I was questioning him about his favorite foods there was an increase of intestinal activity. A similar increase was observed also in a woman with a large rupture. This allowed the bowel to escape under a thin covering of skin which only slightly concealed the rhythmic movements. One day when, for a time, the loops had been quiet, the nurse appeared with luncheon and within a few seconds I saw a peristaltic wave rushing down the bowel.

The most striking evidence of a psychic increase in tone and activity was seen in a jolly bon-vivant whose anal sphincters had been destroyed by a series of operations for fistulas. As a result, many of the rush waves

down the bowel, instead of stopping as they normally do at the ileocecal sphincter or somewhere in the colon, ran on and produced a bowel movement. The interesting point is that in this man the sight and smell and even thought of food produced rushes. They were most annoying at breakfast time, when after the night's rest the bowel was most sensitive, and as a result he had to eat his breakfast in the bath room. Ordinarily, except for mealtimes, he had little difficulty unless, perhaps, when passing a restaurant he happened to catch an appetizing whiff of food, or unless some practical joker among his cronies, knowing his infirmity, began to discuss before him the relative merits of Hungarian goulash and beefsteak and onions. He knew the site of every restaurant in town and never passed near one if he could help it. His case reminded me of one described by Macewen in which the patient had one of those trying fistulas of Stenson's duct which allow saliva to run down over the face. This man begged all his friends, as they loved him, never to mention food in his presence. He was somewhat like the small boy with mumps who objects to anyone's mentioning a lemon in his presence.

One is reminded also of what Osler once said, that the comedy of life is often spread before us "and nobody laughs more often than the doctor at the pranks Puck plays upon the Titanias and the Bottoms among his patients." Perhaps the cruelest such prank that I ever saw had as its butt a young woman who consulted me about an infirmity which threatened to interfere with her ever finding a mate. In her the slightest sign of affection on the part of a young man so increased the tone and activity of the digestive tract that she was promptly summoned away by a call of nature so imperative that it could not be denied; she had to flee precipitately just when she would most like to have remained. I have seen several other young women who were unable to go out into society because any excitement, especially of a sexual type, would bring on vomiting or loud rumbling in the bowel.

The purging effect of fear or anxiety is, of course, well known. The earliest reference to it that I know of is to be found in the Taylor cylinder in which Sennacherib (about 700 B.C.) describes his battle with two young kings of Elam. He says: "The vehemence

of my battle line like a bull overwhelmed them . . . To save their lives they trampled over the bodies of their soldiers and fled. Like young captured birds they lost courage. With their urine they defiled their chariots and let fall their excrements."

Many sensitive persons suffer from looseness of the bowels for a day or two before so mild an adventure as a railway journey, and some constipated persons have told me that they know their bowels would move normally if only they could get the right amount of excitement out of life; a certain amount causes constipation and too much causes diarrhea. Constipated persons have told me also that the meals that are eaten with pleasure and in good company are likely to be followed by a normal bowel movement.

Koehler in his book on the mentality of apes tells how the sight of a "teddy bear" so frightened his chimpanzees that they were immediately and thoroughly purged. Hatcher and Weiss have discovered a remarkable spot in the brain where the experimental application of tiny doses of certain drugs will cause defecation, and it may be that some of the misery of those

nervous persons who are constantly aware of the presence of an irritable colon is due to an oversensitiveness of this and other centers in brain and cord.

Recent work by Cannon and his students has shown that there are centers for the emotions in the midbrain; centers which ordinarily are held in restraint by the cortex. When this restraint is removed as in animals by decerebration or in man by a small dose of some anesthetic such as ether or alcohol, emotions of pleasure or grief or rage are likely to get out of hand and to control the behavior of the individual.

Ever since the day following the earthquake and fire in San Francisco when I saw a poor girl thrashing about in the convulsions of hysteria and acting for all the world like a chicken with its head just cut off, it has seemed to me that much of the distressing hypersensitiveness of nervous men and women must be due to a loss of cerebral control over centers situated in the lower part of the brain and cord.

Just as the higher centers are the first to fail under the influence of overwork, worry, loss of sleep, and all the other producers of fatigue so, for the same reason, any agency

that interferes with the metabolic processes in the intestinal tract is likely to injure the highly sensitive and active first portion of the bowel more than it does the less sensitive and more sluggish terminal portion. The result might well be a flattening or reversal of the gradient of irritability and force which probably determines the direction of peristalsis, and with this there is likely to be loss of appetite and a tendency to reverse peristalsis with its attendant nausea and vomiting.

At first thought one would expect an increase in the irritability of the digestive tract to result in diarrhea, whereas actually, constipation is the rule. A possible explanation is that the sphincters at the two ends of the stomach and of the colon, which I have reason to believe are normally more sensitive than the rest of the tract, become so irritable and tonic that they cramp down and interfere with the progress of food and its residues. This explanation is supported by the fact that there are a number of nervous, unduly irritable women who suffer from spasm of every sphincter in the body. They have perhaps pharyngospasm with a feeling of a lump in the throat; slight spasm

at the cardia; spasm at the pylorus, causing delay in the emptying of the stomach; spasm at the ileocecal sphincter causing delay in the emptying of the small bowel; spasm of the anal sphincters causing constipation, and spasm of the muscles about the vulva causing discomfort in sexual intercourse and irritability of the bladder. Constipation is commonly of nervous origin; it is often associated with a marked tightening of the anal sphincters, and this I believe is part of the general tenseness of the muscles which is seen in nervous, hypersensitive persons. It is this same tenseness that often serves to keep them from going to sleep at night.

More than a hundred years ago, a layman, Brillat-Savarin, writing on the art of enjoying food, described with uncanny prescience what goes on in a man waiting eagerly for his dinner. "Memory recalls foods that have flattered its taste: imagination fancies that it sees them, . . . the whole nutritive apparatus is moved. The stomach becomes sensible, the gastric juices are moved and displace themselves with noise, the mouth becomes moist and all the digestive powers are under arms, like soldiers waiting the

word of command. After a few moments there will be spasmodic motion, pain, and hunger."

This influence of emotion on the motor functions of the digestive tract with the resultant gurgling and loosening of the bowels must have been observed by primitive peoples and probably accounts for their tendency to locate the soul in the abdomen. Even today we unconsciously endorse this idea when we complain that someone "hasn't the guts" to do what he should do.

A number of observations have been made which indicate that food which is palatable and which is eaten with pleasure will leave the stomach earlier and will be digested better than food which is not palatable or which is not eaten with pleasure, but as will be shown later, these influences are not always effective.

Many experimenters have noticed that in animals the sight or smell of food will increase the activity of the stomach and bowel, and a few observations similar to mine have been made on human subjects. Thus, Danielopolu and Carniol put a recording balloon into the stomach of a

hungry man, and after waiting for a while to get a base line, brought a breakfast into the room and allowed another man to eat it. After a latent period of five minutes the empty stomach of the first man became active. Sinelnikoff studied a woman with an artificial esophagus made from a loop of small bowel transplanted under the skin of the thorax. When this loop was active a harsh word spoken to her would stop the movements for several minutes.

EMOTIONAL INHIBITION OF PERISTALSIS

It has long been known even to the layman that disgust, excitement, fear, anxiety, anger, fatigue, pain or injury will stop or reverse the movements of the digestive tract. A child who has suffered injury or severe fright shortly after a meal will often, after several hours, return the food quite unchanged. I remember once examining a neurotic young man with the fluoroscope and finding every bit of a barium meal eaten six hours before still in the stomach. There were no symptoms or signs of organic disease, so I began inquiring and learned that all that day he had been much upset over a political row in his lodge which that

evening was to be fought to a finish. Later, when he was calm, the stomach emptied perfectly. Miller and his associates reported similar observations on students worrying over an examination, and Cohnheim and Carnot found while studying animals with duodenal fistulas that the slightest uneasiness, excitement or fear would immediately close the pylorus and keep it closed for some time.

When, in 1896, Cannon began with the roentgen ray to study the movements of stomach and intestine, he discovered that the slightest uneasiness, discomfort, or anger experienced by the animal would immediately stop all movement in stomach and bowel. For this reason he had to use elderly female cats, well used to handling and with pleasant dispositions: old tabbies that would lie quietly under the screen and purr. Similar observations on various animals have since been made by many physiologists and it is now known that much of such inhibition can be avoided by cutting the splanchnic nerves; some of it travels also through the vagi.

Sinelnikoff has described how one day as he was recording the contractions of a

Vella loop of bowel the crash of a falling window frightened the animal and immediately caused a lessening of the tone and activity of the intestine. In sensitive animals the mere presence of a stranger in the laboratory was enough to inhibit the movements of the bowel. Some animals, however, were so unemotional or insensitive that nothing influenced them. Using abdominal windows in rabbits, Sinelnikoff confirmed Auer's observation that the slightest distress will stop peristalsis. It is a curious fact that when a sleeping dog appeared to be dreaming the bowel became quiet. Borchardt, who worked with animals with a loop of intestine under the skin, found it hard to interpret the results of experiments because the tone and activity of the intestine were constantly responding to slight stimuli such as the footsteps of some one, a pat on the head, a scolding word, or the crying of a cat in an adjacent room. All these reactions came to an end when the nerves supplying the loop were cut. Rossbach, who watched coils of bowel contracting under the thin abdominal wall of a woman, noticed that fright or anger would stop all activity for about ten minutes.

That the currents in the digestive tract can be reversed by worry was well shown me by a nervous young woman who one day received a menacing letter from the income tax collector. This so frightened her that, instead of going to see what the trouble was, she took to her bed and vomited day and night for a week. She stopped only when, after learning what had happened to upset her, I went to the custom house and appeased Uncle Samuel with \$3.85; which shows incidentally that not all good medicine need come out of a bottle. Another young woman vomited for two weeks when she learned that her mother had cancer of the stomach. Lehman and Gibson, who studied a man with a jejunal fistula, actually saw reverse peristalsis in the bowel associated with periods of mental depression.

THE PSYCHIC SECRETION OF SALIVARY, GASTRIC AND PANCREATIC JUICE

From time immemorial it has been known that the thought or sight or smell of a luscious morsel will make the mouth water, or, as Brillat-Savarin would say, "inundate with pleasure." Brér Rabbit "dribbled at de mouf" when he saw something that he

wanted badly, and anyone who has owned dogs knows how some will drool in anticipation of a titbit. Primitive man could see for himself that under the influence of psychic stimuli the salivary glands prepare for the approaching feast, but only with the coming of the present era of experimental science could it be learned that the gastric glands can similarly be stirred into action.

It was in 1843 that Blondlot first noticed, while working with animals with a gastric fistula, that the simple tasting of food would cause secretion to appear in the opening, and nine years later, Bidder and Schmidt, again with animals, found that even the sight of food would cause the gastric juice to flow. Later, in 1878, Richet observed in man the secretion of gastric juice following the chewing of tasty food. The subject of his experiments, like so many of those since studied, had some time before inadvertently swallowed lye, and the resulting complete closure of the esophagus had compelled him for the rest of his life to take nourishment through a hole made into the stomach. Beaumont appears never to have observed the psychic secretion of gastric juice because

he says repeatedly that St. Martin's stomach usually remained dry until some excitant like food was applied to the mucous membrane.

Since 1878 the existence of a psychic or appetite juice has been many times confirmed on animals and on man. As one would expect, much depends on the temperament of the animal or the man who is being experimented on. Those who are emotional and enjoy their meals naturally show better response than those who are stolid and who do not take much interest in food. The importance of having food nicely served was emphasized by several workers who found that with their experimental subjects (normal university students) the sight of food was more effective in producing secretion than the smell of food.

Schreuer and Riegel emphasized what may be a significant point and that is that persons with normal stomachs and with diets containing much meat may get along well without appetite juice while persons with a tendency to subacidity or persons living largely on starches and sugar may get into serious trouble if they

do not chew or if they eat under unpleasant and unfavorable conditions.

According to a number of experimenters there is a slight psychic secretion of pancreatic juice, a secretion which can no longer be aroused after vagotomy. So far as I know this type of secretion has not been demonstrated in patients with a pancreatic fistula. The available evidence seems to be against the existence of any psychic influence on the flow of bile. It is a common belief that a person can become jaundiced under the influence of anger or other strong emotion but I have never met with an instance of it. I do know, however, of a man who had severe gallstone colic every time he became very angry.

THE STOPPAGE OF SECRETION BY EMOTION OR FATIGUE

Just as secretion can be induced by pleasurable emotions, so also it can be stopped by unpleasant or painful ones. Cannon speaks of the ancient ordeal used in India to pick a thief out of a group of suspected persons. Each is given a bowl of rice and the criminal is detected by his dry mouth and his slowness in insalivating and swallow-

ing the food. Bickel and Sasaki found that dogs that became much excited over barking at a cat, or that were worried over the presence of a stranger in the room did not secrete gastric juice. Similarly with men and women it has been shown repeatedly that unpleasant emotions such as fear, anger, annoyance, anxiety or disgust will put a stop to secretion.

The studies of Hornborg and Bogen were carried out on two children, three and four years of age, who cried angrily when they were not immediately given the food that was shown them. Under those circumstances it was not surprising that the stomach remained dry. Similarly when Schrottenbach spoke sharply to his boy with a gastric fistula no psychic juice appeared. As one might expect, when a test meal is given by tube there is less secretion of gastric juice than when the patient is allowed to eat normally.

Cannon once reported the case of a woman who appeared at the first examination to have no gastric juice but who on subsequent tests was found to have plenty. It was then learned that on the night preceding the making of the first analysis she

had been kept awake and badly upset by the conduct of a husband who had chosen the occasion to get uproariously drunk.

That the flow of intestinal juice may likewise be stopped by distressing emotions is indicated by the experience of Macewen with a young man who had a large opening into the cecum. One day when the patient received bad news it was noticed that the mucous membrane had lost its luster and its usual coating of moisture. It was noticed also that the material coming down from the small bowel became acid, and the man complained of feeling "bilious."

In dogs a stoppage of pancreatic secretion under excitement has been demonstrated by Oechsler. When the flow was well under way it could easily be stopped by the bringing into the room of a cat or of a bitch in heat. Freudians will be pleased to learn that so long as libido was suppressed there was no flow but when it was satisfied the pancreas became active again.

Many years ago, as a boy helping my father in his practice, I was struck with the way in which fright and pain can stop both the secretory and the motor functions of the digestive tract. Early one morning

a girl fell out of a mango tree and broke her arm. It was a long drive in a buggy to the city, so it was near noon before the parents could bring the child to the office. With the first few whiffs of anesthetic she vomited, and I have never forgotten my surprise at seeing the fruit, eaten hours before in the tree, still untouched by digestion, and with the marks of teeth clearly chiseled on the surfaces.

In a man (with a fistula) studied by Mantelli, gastric secretion was inhibited not only by psychic strain but also by physical fatigue. For an hour or two after strenuous muscular exertion little if any psychic juice could be obtained, and only after two hours did the stomach respond normally to the actual presence of food. Similar observations were made by Cohnheim and his associates who studied the acidity of their gastric juice the morning after a severe climb in the Alps; the secretion of one was normal; of two, subacid; and of one, almost anacid. The failure to secrete may have been due partly to fatigue and partly to sweating, with the resultant dehydration and loss of chlorides.

These observations interest me because on trips into the mountains I have noticed that the man who comes into camp hungry from an exhausting climb and immediately sits down to a hearty meal will occasionally suffer afterward for several days with abdominal pain, flatulence or diarrhea. Sometimes the food will appear in the stools, decomposed, foul smelling and undigested, and the most obvious explanation is that fatigue dried up the all-important ferments.

I have seen similar failure of digestion with resultant diarrhea when food was eaten under psychic strain as at banquets, at political meetings, or in homes overshadowed by illness and death, and I suspect that many upsets now ascribed to the eating of some unknown spoiled food are really due to this drying up of secretions which accompanies excitement and fatigue.

Beaumont observed that in a number of conditions, among which he mentioned "fear, anger, or whatever depresses or disturbs the nervous system, the villous coat on the stomach becomes sometimes red and dry, at other times pale and moist, and loses its smooth and healthy appearance; the secretions become vitiated, greatly

diminished, or entirely suppressed . . . ” On one occasion when Alexis St. Martin became very angry, much bile regurgitated into the stomach, which makes one wonder if there is not something after all in the ancient association between the ideas of bile (chole) and anger (choler). He who remembers his Homer knows how poorly restrained were the emotions of our early ancestors, and anyone who has seen a Mexican woman vomiting bile after a “coraje” or wild debauch of temper can imagine how some such physiologic observations may have influenced the growth of human speech. It may be also that early man noticed occasional instances of jaundice appearing after an exhibition of violent anger.

One of the necessary accompaniments or precursors of secretion in the digestive tract appears to be a flow of blood to the part. Many have observed that when digestion commences, the pale pink mucous membrane becomes engorged and reddened, and Schrottenbach found that coincident with the psychic secretion of gastric juice there was a diminution in the flow of blood to the arm and presumably an increase in that to the digestive tract.

It would seem from all these facts that physicians ought more often to warn their patients against eating at those times when the mind is so distracted that there is no chance for the development of psychic juice or psychic tone. Under the conditions of modern life, probably most of the meals eaten by persons who have little appetite have to be digested without much help from the cerebrum. Fortunately, the necessary centers lie farther back in the more autonomous parts of the brain, so that even the absent-minded professor and the tired business man, eating with thoughts miles away, can perhaps secrete "appetite juice" unconsciously, much as a puppy does on its first day of life.

As Pavlov has shown so clearly, the "appetite juice" serves to start digestion on its way; it acts somewhat like kerosene on wood in a cold stove. Without it the fire would eventually get started, but with it a half hour of blowing and waiting can be saved. According to Pavlov, it may be that the soup at the beginning of the meal, with its strong tendency to excite secretion in the stomach, saves many an inattentive and uninterested diner from indigestion.

Smith, Holder and Hawk caused a number of volunteers to eat food that was prepared and served so as to be repulsive, and found that in most cases it was broken up by the digestive juices and absorbed. This agrees with the fact well known to clinicians that a woman put to bed and stuffed against her inclinations will generally gain in weight.

The observations of Mantelli on the weakness of gastric digestion during the period of an hour or two after strenuous physical exertion suggest that perhaps one ought to be at least as careful of oneself as an experienced horseman is of his steed when it brings him home from a long journey. He would never think of watering or feeding it immediately but always ties it up for an hour or two so that when it feeds it will not be attacked by colic. I strongly suspect that a number of the intestinal upsets and spells of diarrhea that are experienced by travelers and usually ascribed by them to the eating of some spoiled food are due purely to the fact that a large meal was taken into a digestive tract that was too tired to deal with it.

Reasoning teleologically, I have never been able to see why the digestive tract should be so subject to nervous inhibition. Surely when a man is face to face with some difficult or dangerous situation he has every need for a good digestion not only to conserve his strength but also to keep up his courage. Perhaps, as Cannon once suggested, these nervous inhibitions, of little use to us today, are survivals from our cave-dwelling forebears whose lives at any moment might depend on the strength that could be withdrawn from the inner organs and concentrated in muscles needed for fighting or for running away.

I look for a time to come when some of those who now contend daily with a hypersensitive, spastic colon will be relieved by the cutting of a few rami of the sympathetic nerves. Important steps along this line have already been taken, but knowledge in regard to the distribution and function of these nerves is still insufficient and it is best to proceed cautiously.

It has been shown that emotions can influence the functions of the glandular tissue about the mouth and in the stomach, pancreas, and intestine; but how about the

largest gland of all, the liver? Might not its functions also be affected favorably or unfavorably by emotion? It is obvious that a large branch of one vagus runs to the hilum, but so far as I know no one knows exactly why it is there. The liver has so many duties to perform, the factors of safety are so large, and the methods of measurement of function so insufficient, that it is as yet impossible to study its responses to emotion. Wilder tells me, however, that the sudden exacerbations of diabetes often seen in patients undergoing psychic strain are probably due to changes, emotionally produced, in hepatic function. In animals denervation of the liver does not appear to have much influence on its functions.

Just as sensitive persons blanch and blush externally, so also they may perhaps blanch and blush internally. It is known that marked changes in the blood supply of the mucosa do take place and they might well help or hinder the mechanism which normally removes gas from the digestive tract. Such a mechanism, together with air swallowing, might explain the sudden attacks of flatulence seen in nervous persons. Such changes in circulation might also

affect absorption in general, but so far very little is known about the subject.

Some of the effects of emotion on the digestive tract may come indirectly also through those nervous stimuli which cause an outpouring of secretion from the thyroid and suprarenal glands. As is well known, hyperthyroidism often produces diarrhea, and disease of the suprarenal glands causes much vomiting.

THERAPEUTIC SUGGESTIONS

Practically, what can be done to improve matters? How can a patient get back a psychic juice and a psychic tone that he or she has lost? Obviously, of course, by resting, by getting sleep, by avoiding worry and annoyance, and by cultivating a better technic at mealtimes. As Brillat-Savarin has said, "Animals feed, man eats, the man of intellect alone knows how to eat." Perhaps, it would do this generation good to read Savarin's book because I fear that too many today are simply "feeding." According to him, no dinner guest should ever be invited again unless with the coming of each dish to the table his face was seen to light up, and his eyes to shine with anticipation.

It is easy enough to remind patients that "Better is a dry morsel and quietness therewith than a house full of feasting with strife"; the problem for them is how to avoid the strife and worry and care. For many it is impossible. Doubtless all that can be done at times is to postpone the meal until strong emotion has passed, calm has been restored, fatigue has lessened, and hunger has returned. In other words, we should accept Macbeth's advice and let "good digestion wait on appetite and health on both."

A practical application of these studies might perhaps be made by the surgeon when after an operation he is worried over a bowel that fails to pass onward fecal material and gas. Without the usual stimulus of food why should it not fail? From what has been presented here, it would seem obvious that when peristalsis is desired an attempt should be made to interest the patient in food; some savory morsel should be brought to him and he should be allowed to smell it and taste it and chew it. Even if he were to swallow some of it I doubt if it would do any harm because, if the tract were not ready to accept it, it would only

be vomited. Actually in the laboratory the best way in which to excite a peristaltic rush is to make the animal swallow. The resulting wave in the duodenum will often appear so promptly that it is probably an extension of the ripple that ran down the esophagus and over the stomach. Similarly, when reverse waves are rippling backward over the stomach and producing heart-burn, belching, hiccup and other forms of distress in the region of the cardia, the patient can sometimes stop them and drive them down again by swallowing repeatedly, by sipping water, or by chewing gum.

CHAPTER II

TYPES OF INDIGESTION

“As the progress of scientific medicine has gradually revealed the morbid anatomy of the digestive canal, and thus detected structural disease with increasing accuracy and frequency, the vague, (but useful) term “dyspepsia” has acquired a continually more restricted meaning. Nor can we doubt that it is destined to still further limitation; and that, as advancing knowledge brings us better means of investigation, and so enables us to discover and distinguish structural changes of which we now can only observe the functional results, the aggregate of maladies called dyspepsia must undergo successive subtractions, tending more or less completely to its total subdivision into special maladies, and to the removal of this term from our nosology.”—Brinton.

There are both within and without the body many other kinds of structure, which differ much from one another as to sufferings both in health and disease; such as whether the head be small or large; the neck slender or thick, long or short; the belly long or round; the chest and ribs broad or narrow; and many others besides, all which you ought to be acquainted with, and their differences; so that knowing the causes of each, you may make the more accurate observations.—Hippocrates.

CHAPTER II

TYPES OF INDIGESTION

NERVOUS indigestion is a convenient term with which to designate all those gastrointestinal disturbances for which no organic cause can be found. Not infrequently this diagnosis can be made with confidence as soon as the patient has talked for a few minutes, but more often it is made by a process of exclusion, after every other type of disease has been thought of and ruled out. In a certain number of cases everyone is pleased; the patient recovers, and the explanation of the symptoms appears to have been correct, but in many other instances neither the physician nor the patient is satisfied with the diagnosis; the distress has perhaps been too great and too prostrating, or it has had a tendency to come in attacks which appear out of a clear sky, or the patient may seem to be stolid and sensible, or he may be leading so quiet and carefree a life that one cannot imagine why he should be troubled with "nerves."

But what is the physician to do? The symptom-complex described is not that of any of the well-known diseases such as cholecystitis or ulcer; roentgen-ray examinations fail to show anything abnormal, and perhaps one or more fruitless explorations of the abdomen have already been made. Under such circumstances it would probably be useless to operate again, so the physician has to treat the patient as best he can with sedatives and rest cures.

In many of these cases, after all our diagnostic resources have been exhausted and nothing has been found, I still agree with the patient that there must be a lesion somewhere, perhaps in the brain or the cord or the nerves. If locomotor ataxia were a rare disease which affected the digestive tract alone and seldom led to the death of the patient I think it probable that today we would still be regarding the gastric crises of the disease as manifestations of a pure neurosis. As it is, we know from much histologic study that the awful attacks of pain, nausea, and retching are associated with degenerative changes in the spinal cord and brain; and we know that in some cases the distress can be stopped by cutting

the nerves between the stomach and the cord.

A number of observers have described what they thought were degenerative and inflammatory changes in the cells of the large nervous ganglia of the abdomen and have claimed that these were responsible for the production of various diseases, but the articles that I have seen were not convincing because too little work was done on normal controls. Unfortunately the problem of finding the microscopic lesions that underlie some of the so-called neuroses is complicated by the fact that there are so many places in which the investigator must look. The disease may be outside of the abdomen, in the brain or in the cord, it may be due to smouldering infection in some of the abdominal organs, or it may be caused by sclerotic changes or transient spasms in the blood vessels supplying stomach and bowel. There are innumerable places also in which the complicated and poorly understood chemistry of digestion and absorption might be upset, and there are many ways in which the bacterial flora of the bowel might change and cause trouble. There is great need for research in this field but it will

take much time, much money, careful technic, and much clinical judgment.

The reader may be surprised to find in the next few pages brief descriptions of organic diseases such as cholecystitis and cancer of the stomach but it seemed wise to include them because the physician who would treat functional indigestion must first be sure that this is what he is dealing with in the particular patient before him. Everything depends on the correctness of the diagnosis, and he who would exclude organic disease must be well conversant with all its features.

WELL RECOGNIZED ORGANIC DISEASE IN THE DIGESTIVE TRACT

GALLBLADDER DISEASE. The commonest organic disease of the digestive tract appears now to be cholecystitis with or without stones. Many and many are the poor women who for twenty years or more belch and bloat and are called "neuros" until the day when they have a typical colic, and everyone about them recognizes the true nature of the disease. Pain will begin under the right rib margin in front and will run back under the right shoulder blade; a

physician will perhaps be called, a hypodermic injection will be given and will bring relief, and next morning there will be tenderness in the upper abdomen and perhaps a little tinge of yellow in the conjunctiva.

Not infrequently the first few attacks of colic are thought to be due to food poisoning, and the patient has to wait for several more years before the true nature of the disease is recognized. In other cases there never are any colics, and in many instances stones are found quite unexpectedly at necropsy or during radiographic study of the spine or kidneys.

As is well known, the subjects of gall-bladder disease are usually women past middle age who are overweight, flatulent, and often badly constipated. The disease tends to be worse in spells and there may be long periods in which there is fair health. These women are often so nervous and on edge from years of suffering that even the most expert diagnostician will at times be deceived into thinking that the nervousness is primary, and enough to explain all the symptoms.

Nowadays the disease can often be demonstrated with the help of the roentgen-ray and the dye discovered by Graham and Cole. If the gallbladder does not show on the films it is probably diseased. If it does show, one knows that the mucous membrane is sufficiently intact to concentrate the bile, but one cannot say from this that the organ is innocuous. Actually the gallbladders that contain stones often show a good shadow with the dye. In gastroenterologic practice a good history is generally worth more than laboratory tests, and the demonstration of a normal-looking gallbladder on the film must not deter the clinician from ordering an operation if he is reasonably sure from the symptoms that cholecystitis is present. It should serve only to make him more cautious than he would be if the clinical and roentgenologic signs were in agreement.

PEPTIC ULCER. The next commonest organic disease of the digestive tract is peptic ulcer. In most cases the lesion is just beyond the pylorus, in the duodenum. When fairly typical, the symptoms of this disease should be recognized as soon as the patient has said fifty words. The victim

is usually a man who complains of pain, or, less typically, distress or a feeling of gas in the pit of the stomach. This comes about eleven o'clock in the morning, about four o'clock in the afternoon, and in the worst cases, about one o'clock in the morning.

Particularly in the early stages of the disease this pain or distress is relieved promptly by the taking of food or alkalis. The trouble usually appears first at about the age of twenty or thirty years; it lasts for a few months and then disappears entirely, only to return off and on at intervals, perhaps throughout life. Between attacks the patient is well and can eat anything. In 1 out of 5 cases there is a history of occasional bleeding. Some of the blood may be vomited and the remainder is passed in the form of tar-like stools. In some cases there are signs of obstruction at the outlet of the stomach; that is, food which was eaten for dinner is vomited at two o'clock in the morning or perhaps after breakfast the next day.

Although in many cases the history is atypical, there are usually some symptoms to make the expert think of ulcer, and the roentgenologist is usually able to demon-

strate its presence with the help of the barium meal. In case of doubt it is easy to throw light on the diagnosis by giving the patient food every two hours. If he is immediately relieved he almost certainly has an ulcer because no other disease of the digestive tract responds so typically to this therapeutic test.

APPENDICITIS. Chronic appendicitis is not always an easy diagnosis for the honest and conscientious physician to make. In my opinion it represents only a convenient (to the physician) guess unless at some time in the past the patient has suffered one or more attacks of pain in the epigastrium and right lower quadrant of the abdomen, with nausea or vomiting, perhaps a little fever, and residual soreness. Following this upset the symptoms consist usually of a soreness or a consciousness of something wrong in the right side of the abdomen, with constipation, flatulence, loss of appetite, a tendency to fill quickly at meal times, loss of energy, and rarely, symptoms that suggest the presence of ulcer.

Many roentgenologists endear themselves to their surgical friends by making the diagnosis of appendicitis for them. Many

is the man or woman who has consented to a needless operation simply because the attending physician or surgeon was able to point menacingly to the shadow of an appendix that was a little long or a little short, a little bent, or perhaps a little slow in emptying. I have never been able to convince myself that appendicitis can be diagnosed in this way, and I know a number of experienced roentgenologists who feel as I do. I realize that so long as human nature is what it is, the roentgenologist who depends on referred work will have to have rare courage and idealism and a strong feeling of responsibility to his fellow men before he can do as he should do and write "normal digestive tract" on most of the reports which he sends out. He knows that the physicians who send him work want positive diagnoses made for them, and the temptation is great to expatiate on slight congenital abnormalities, slight stasis here and there, normal kinks, ptoses, and suggestions of adhesions, appendicitis, and colitis. As I have already intimated, the tragedy is that such a report in the hands of an inexperienced, overly optimistic, lazy, or unscrupulous physician can be used as a

powerful instrument for driving the patient into a useless operation.

CANCER OF THE STOMACH. Cancer of the stomach must be looked for carefully in every man or woman who, having reached middle age with a perfect digestion suddenly finds it beginning to fail. It should be ruled out by expert roentgen-ray examination in every person past thirty who begins to complain of indigestion, abdominal distress, or anemia, or who is failing in strength, in health, or in weight; and it must be thought of immediately whenever indigestion appears for the first time in a person past middle age. Furthermore, any lesion which is discovered in the stomach, and particularly a large one which has given symptoms for only a short time, should be looked on as potentially cancerous until it is proved otherwise.

Not infrequently the patient is not alarmed at first because the symptoms appear to come as the result of a cold, an injury, or a shock over the death of a relative. There is generally constipation, with a more or less constant pain or soreness or distress in the pit of the stomach. This is relieved somewhat by cutting down on the amount of food eaten or by living on liquids;

and occasionally, for a few weeks or months, the patient will appear to recover and will even gain in weight. Sometimes the trouble begins with vomiting and other signs of obstruction at the outlet of the stomach. It must be remembered that elderly men and women who have been healthy all their lives rarely suffer with "nerves." Whenever they begin to ail some organic cause is almost surely present. In the case of cancer I need hardly say that the only hope of cure depends on the making of an early diagnosis.

CANCER OF THE COLON. Cancer of the colon should be thought of immediately whenever a man or woman more than thirty years of age begins to have serious difficulty in securing a bowel movement. Perhaps there will be occasional attacks of colic and sometimes there will be red blood in the toilet bowl after defecation. Even if the patient is known to have piles, an examination of the colon must be made, first with the sigmoidoscope and then, if necessary, with the roentgen-ray. Unfortunately most of the patients with cancer of the stomach or bowel who go to a surgeon go too late either because they did not pay attention to

the early symptoms or because their physicians did not examine them.

DIVERTICULITIS OF THE COLON. Occasionally symptoms somewhat similar to those of cancer of the bowel will be produced by inflammation in little diverticula or hernia-like outpouchings of the mucous membrane of the colon. There is usually abdominal pain and soreness, severe constipation, sometimes fever, and sometimes irritation of the bladder.

INTESTINAL PARASITES. The most important intestinal parasite encountered in the United States is the ameba of dysentery. Infestation with this organism must always be thought of in the case of persons who have lived in the tropics, and it should be ruled out in all cases of vague indigestion and flatulence. It is not necessary that the patient have been out of the United States or that he or she have ever suffered with diarrhea. If an expert parasitologist is not available to examine the stools, and even sometimes when he has failed to find parasites or cysts, it may be helpful to try a therapeutic test. If a course of stovarsol or treparsol: one tablet three times a day for four days, fails to produce an amelioration

of the symptoms there is little probability that the disease is due to amebiasis.

The physician must be careful not to take too seriously the discovery of intestinal parasites in patients whose troubles would otherwise be diagnosed as due to a neurosis. The enthusiast who lacks that well-balanced judgment that comes only from years of practice in many fields of medicine will answer immediately that in these cases the nervous symptoms and the lack of strength and vigor are due to the presence of the parasites. Occasionally, of course, he is right, but I cannot share his enthusiasm because I have seen too many patients who either failed to recover after strenuous anti-parasitic treatment or else were made much worse by it.

In many cases I tell these much worried patients that the few parasites in their intestines are probably like so many fleas, unpleasant of course and worth removing, but not the cause of their neurasthenic symptoms. The careful and thorough physician will look for parasites and will often try to remove them, but he will not be surprised or disappointed when he fails to make the patient feel better.

The real test of a clinician's ability and good judgment is often the way in which he refuses to chase off after every false scent that is thrown across the diagnostic trail. Often he will have to point out to fellow consultants that even if the patient before them should have the suspected disease in, let us say, the appendix, it could not possibly explain all the symptoms complained of. Some day I hope to find time to write an article on the many slight abnormalities which are discovered during routine examinations, and strenuously treated in spite of the fact that they have nothing to do with the presenting symptoms. Unfortunately, so long as human nature is what it is this sort of thing will go on. We are all of us somewhat lazy and it is so much easier to order the extraction of a few teeth, the removal of tonsils, or the clearing out of a few amebic cysts than it is to grapple with the problems of the patient's life which have made of him or her a nervous wreck. It is easier, also, to tinker here and there with little abnormalities than to say frankly and honestly: "I do not yet know what the trouble is or how to treat it."

GENERAL DISEASES

There are a number of patients who think they have indigestion because they want to belch or because they feel as if gas were pressing up under the heart. Not infrequently these symptoms are due not to indigestion but to HIGH BLOOD PRESSURE or to the distress of a FAILING HEART. Obviously such patients cannot be helped by dieting but must be made to rest, to move away from hills, and to cut down on their burden of work. In many other cases the primary trouble seems to be an irritable, nervous heart, which misses beats, races, or otherwise upsets the patient. The cure then must consist mainly of reassurance, and the victim must be convinced of the fact that the heart is sound, that the disease is in the nerves, and that there is no danger. For years I have kept in the consulting room a copy of Sir James Mackenzie's splendid book on the heart, with a bookmark at the place where he says that skipping beats of the type so commonly complained of have little significance. Many is the time that the showing of this paragraph to a patient has worked a cure.

The gastroenterologist must always be on the look-out for *PULMONARY TUBERCULOSIS* because the first symptoms of this disease are sometimes indigestion and loss of appetite. Occasionally pains originating in the right pleura, together with indigestion, will suggest the presence of disease in the gallbladder.

The physician must be on the watch also for signs of *HYPERTHYROIDISM* in every nervous patient and in everyone who has lost weight. As he takes hold of the hand he will note that it is warm and moist; the pulse will be rapid and the patient will be weak. Sleep will be poor and complaint will often be made that the room is close and the air too warm. The diagnosis is easily missed when the thyroid is not visibly enlarged and when the eyes are not prominent.

One must be on the watch also for *HYPOTHYROIDISM* or *MYXEDEMA*, especially in older women. They are tired and depressed, they feel stupid, their features are somewhat coarsened, they feel cold much of the time, they perspire little, and sometimes they fall asleep during the day. Unfortunately these symptoms are seldom mentioned by the patient; they come on so

gradually that they are not recognized as signs of disease, and as a result the diagnosis is often missed. I would surely have missed it on one occasion if I had not noticed that the patient was wearing his winter galoshes in May. A little questioning elicited a typical story, and the basal metabolic rate was found to be 30 per cent too low. The man had been unable to work for ten years and had often been accused of being a "neuro" and a slacker. He looked well but was "too tired even to go fishing."

The gastroenterologist is often the first physician to see the patient with beginning **PERNICIOUS ANEMIA**. The principal symptom at first may be a vague indigestion with a tendency to diarrhea, sore tongue, anemia, and feelings of numbness in the hands and feet. Gastric analysis will show the characteristic absence of hydrochloric acid.

Some of the aches and the sharp, stabbing, momentary pains felt in the chest and abdomen are due to **ARTHRITIS OF THE SPINE**. On careful questioning it will often be learned that the patient has suffered one or more attacks of lumbago, sciatica, or "rheumatism," and roentgen-ray examination will show that the joints of the spine

are deformed and surrounded by little deposits of lime. The nerves emerging from the spine are doubtless involved in this process and the pain is felt, as it always is with injured nerves, out in the endings somewhere in the abdomen or in the abdominal wall. Such pains are rarely influenced by eating; they are often worse after the patient has been sitting or lying quietly for a time, and they are best relieved by heat and massage.

When pain is not affected by the taking of food, and especially when it radiates down toward the bladder or when it is associated with frequent and painful urination, the physician must, of course, look for DISEASE IN THE URINARY TRACT.

POORLY UNDERSTOOD BUT PROBABLY ORGANIC DISEASE

GASTRITIS. Most gastroenterologists to-day hesitate to make this diagnosis. So far as they can tell the disease is uncommon, and when it is present it is questionable whether it always produces symptoms. It is commonly present in association with gastric ulcer, gastric cancer, and nephritis, but in such cases its importance is over-

shadowed by the more serious primary disease.

The diagnosis of gastritis, or perhaps, more properly, enteritis may perhaps be made in those cases in which after an acute upset from eating spoiled or infected food, symptoms of indigestion continue for weeks and months. In such cases relief can often be obtained by cutting down for a few weeks on the amount of food eaten and the amount of roughage in it. Recent studies by Childrey have shown that if the intestine is overburdened or upset on one day it will not digest well on the next. Under such circumstances a vicious circle may easily be started and this will be maintained unless for a time the burden of digestion is lessened and the bowel is allowed to catch up with its work.

Much indigestion is doubtless due to the kind of food eaten, to the way in which it is prepared, the conditions under which it is eaten, and the way in which it is gulped down. A strong digestive tract can digest anything that is at all edible, no matter how it is cooked or how poorly it is served or chewed, but weaker tracts must be humored, and many is the man who fears

to eat at restaurant or club the foods that give him no trouble at home. Some of the difficulty is probably due to the greater amount of seasoning used by chefs, but much of it is due to a lack of proper relaxation during and after the meal.

Much indigestion is doubtless due also to overeating, some to an over-indulgence in hard liquor, and some perhaps to over-indulgence in coffee and tobacco. Unfortunately, little or nothing is known of the mechanism of these types of indigestion. Sometimes there may be actual irritation of the mucous membrane of stomach and bowel, but more often I think the sudden dumping of large amounts of food into the digestive tract must upset the rhythm of peristalsis and must cause waves to run abnormally.

ABDOMINAL PAIN. There are a number of patients in whom the only diagnosis possible is the meaningless one of abdominal pain. In some of these a real diagnosis can sometimes be made if the physician can only continue to observe the patient long enough, or if he can see him in an acute attack. Often the only thing that one can do is to wait for more symptoms, and particularly

for symptoms that will point to the source of the trouble.

PSEUDO-CHOLECYSTITIS. There is a large group of patients in whom the symptoms strongly suggest disease of the gallbladder. Often these persons have had sick headaches and "bilious spells." Usually there will be bloating, belching, distress shortly after meals, and soreness about the edge of the liver. Many of these patients have already submitted to surgical exploration of the abdomen, and in some the gallbladder has been removed, but still the symptoms persist. In some cases there will even be attacks of colicky pain indistinguishable from that produced by gallstones.

Unfortunately for the clinician, the severity of the symptoms associated with cholecystitis is not well correlated with the amount of disease that can be demonstrated in the gallbladder. Patients whose symptoms are typical will occasionally be found at operation to have what looks like a normal biliary tract, and persons who have never complained of indigestion will be found at necropsy to have a handful of stones. Under the circumstances it is easy to make mistakes in diagnosis.

If the patient with pseudocholecystitis still possesses a gallbladder, roentgen-ray examination will usually show it to be functioning normally; and especially if the patient is neurotic with many aches and pains outside of the abdomen, the wise physician will refuse to permit further operating. In many of these cases I feel sure that real disease is present; perhaps cholangitis, or hepatitis or beginning cirrhosis of the liver, but as yet this conviction does not help me in trying to relieve the symptoms.

Occasionally I have seen remarkable improvement or even a cure following the removal of an apparently normal gallbladder but on the other hand I have seen many cases in which this procedure failed to give relief. Some patients can be helped temporarily by the use of Lyon's "biliary drainage"; others will get along better if they learn to take their large meal in the middle of the day, and others will be helped somewhat by the prescription of a smooth diet and of drugs which will calm the nerves and will help to relieve flatulence. In a number of these cases the cause of the symptoms appears to be recurrent infection through the bile ducts of the liver, and the

drug that we need is one which will either raise the resistance of the patient or will disinfect the biliary tract. As yet I do not know of any measure that will accomplish either of these desired ends. In many cases I think something might be accomplished by treating the patient as if he or she had tuberculosis; we should try to raise the resistance to infection by prescribing rest out of doors in a sunny land.

PSEUDO-ULCER. There is a considerable group of patients in whom the symptoms suggest the presence of peptic ulcer. Often the gastric acids are high and there is much complaint of heartburn and acid regurgitation. Sometimes there is a suggestion of hunger pain or of distress which is occasionally relieved by the taking of food and alkalis. Ulcers are doubtless present in some of these persons, even when the most expert roentgenologic examination fails to reveal them, but in other cases the fact that a surgeon has explored carefully and has been unable to find one indicates that the roentgenologist was right.

In some instances it may be that we are face to face with a pre-ulcerous condition; that is, some nervous or circulatory or

secretory disturbance which will eventually lead to the formation of an ulcer. Occasionally one of these patients does return after several years with a definite ulcer but I know others who have had the symptoms for a long time and in whom I feel fairly sure there still is no ulcer.

PSEUDO-APPENDICITIS. There are many cases in which the symptoms greatly resemble those produced by a chronically diseased appendix but in which removal of the organ has no effect. I have seen some of these patients explored again and again without anything being found. In many others the real trouble should have been looked for and found in the gallbladder or in the duodenum. As some wag has said, the commonest operation done today for duodenal ulcer is appendectomy. In a few cases I think the pain is caused by a spasm of the ileocecal sphincter which keeps the food residues from passing through. In one such case in which the symptoms had been severe and lasting and in which I could demonstrate marked ileal and gastric stasis, the short-circuiting of the sphincter with the help of an ileocolostomy led to complete recovery.

Especially in children and young persons appendicitis is sometimes simulated by a poorly understood infection which produces inflammation and enlargement of the lymph nodes of the mesentery. At other times the pain in the right side may be due to arthritic changes in the spine, to mucous colitis, or more rarely, to disease of the right kidney or ureter. In some cases the cause of the symptoms would seem to be in the nervous system, but where the lesion is I do not know.

FUNCTIONAL DISEASE

Before taking up the subject of functional diseases: fatigue and nervousness and all the symptoms that they can engender, I must again warn the reader that not only are nervous persons not immune to organic diseases but emotional strain can upset and injure a diseased stomach just as easily as it can upset a normal one. I once knew of a choleric litigious old man who tried with the help of a shotgun to keep the highway surveyors from running a line across his farm. Every time he worked himself into a rage over the injustice which he felt was being done him he had what appeared to be

gallstone colic. The interesting point is that finally an operation showed that he did have gallstones. I can remember many other patients who found it hard to accept my statement that their troubles were due to an ulcer because every one of their severe attacks of pain and distress was associated with some distressing crisis in their fortunes.

One of these men was an inventor who after years of poverty and hard work finally induced one of the richest industries of the country to try out his machine. At first it worked. It promised to save millions of dollars which had previously been wasted, royalties began to flow in, and my patient saw wealth and comfort within his grasp. A few months later, however, there came a change in the raw product which was being refined, the machine clogged, and the company ordered my friend to come and take his "darned contraption" out. He immediately had a big hemorrhage, but as he lay pale and wan in his bed there was a drafting board on his knees and soon the difficulty was overcome. Again wealth flowed in, again the machine failed, and again it was remodeled. This happened at least six

times in three years and on each occasion there was a severe hemorrhage.

FATIGUE NEUROSIS. This is probably the most common diagnosis which is made in the case of those nervous patients who show no sign of organic disease. The clinical picture is that of a man or woman who has broken down under the strain of overwork, long hours, heavy responsibility, no vacations, and perhaps insomnia. Perhaps the patient has found for himself that he is better whenever he takes a rest or goes on a fishing or hunting trip. The symptoms are generally vague as compared with those of patients with organic disease and they consist ordinarily of loss of appetite, distress after meals, flatulence, belching, constipation, and general hypersensitiveness.

When there is no history of overwork and still the patient is obviously hypersensitive, apprehensive, and on edge, one may have to fall back on a diagnosis of simple "nervousness." Many persons resent this label because they think it implies that they are excitable, flighty, foolish, or in some way culpable. They forget that a person who is outwardly calm may be inwardly seething, tense, frightened, or hypersensitive.

TEMPERAMENTAL INDIGESTION. I use the term, temperamental indigestion, to describe the troubles of certain men and women who get along well enough until some annoyance sets them off into an emotional debauch. If they would only learn not to let other people annoy them, if they would avoid losing their temper as they would avoid the plague, and if they would learn to control their emotions, they would be well.

ANXIETY NEUROSIS. The term anxiety neurosis is useful for designating those cases in which after the sudden death of a relative or friend, or after a visit to a pessimistic or tactless physician, or after the appearance of symptoms which are thought to be due to the return of old, well-treated syphilis, the patient becomes terror-stricken. It might perhaps be used also in those cases in which the patient has to watch the slow death of some loved one, or in which a man lives in daily dread of bankruptcy or of arrest or conviction for some serious crime.

MARITAL INFELICITY. In some cases the diagnosis must be marital infelicity. There are, unfortunately, many persons who have

to go on living together in spite of the fact that they have come to loathe each other. Gladly would they separate but they are passionately fond of their children and no way can be found out of the difficulty. Perhaps the wife is insanely jealous, or the husband has been untrue and a divorce is pending, but whatever the reason, the mental strain on one or both parties is so great that as long as it lasts there is little that the physician can do. In dealing with these cases there is one point that I hammer at and this is that if the wife really intends to get a divorce she must get it quickly and have it over with. Then her health can mend. But if she hasn't the "nerve" or sufficient will or income to leave her husband, then she must stop talking about it, she must accept the situation as it exists, perhaps infidelity and all, and must learn to make the best of the situation. There is no half-way station in which she can find health, sleep, or a normal digestion.

NERVOUS VOMITING. I believe there should be a separate classification for the girls and young women who vomit or regurgitate immediately after meals or after excitement. The problem is rarely one

of indigestion because the food which is retained is generally handled comfortably, and operations on the stomach or bowel are worse than useless. Occasionally one will find organic disease in a woman who is behaving in this way but in such cases the symptoms are likely to persist after operation.

PSYCHOPATHY. The gastroenterologist sees many patients whose primary trouble is a psychopathy. They are worn out and on the verge of a nervous breakdown not because their work is hard but because they have poor nervous heredity, because they spend their mental energies so riotously and so unwisely, and because they adjust themselves so poorly to the demands of the world about them. They fuss and fret openly or silently over little things, and they expend over trifles more thought and energy than a sensible man or woman puts into a week's work.

I remember once seeing a young woman who was obviously on the verge of a nervous breakdown. Knowing that she had a beautiful home, a wealthy and devoted husband, and numerous servants, I said to her, "What has worn you down to this state?"

Her answer was short, correct, and to the point, "I wear myself out." Later I found that this young woman could not make the slightest decision without great effort: which shoe to put on first, which dress to wear, whether to accept or refuse an invitation, all this was torture to her. Still greater was the torture of knowing that her trying behavior was gradually but surely alienating from her the affection of the husband whom she dearly loved. She was frantic to win him back but could not find the strength to mend her ways. Why couldn't she? Because she had an insane sister and this *folie de doute* was her small share of the nervous weakness that has appeared in various forms here and there in her father's relations.

Few physicians seem to realize the importance of insane ancestry in the causation of many of the disease pictures which they see. They do not seem to know that for every insane person confined to an asylum there are a number of eccentric queer, frail, tired, poorly sexed, ne'er-do-well, alcoholic, overly religious, hypersensitive, dyspeptic, or poorly adjusted relatives abroad in the community. The sad fact is

that when these persons consult a physician for aches and pains and weakness the true nature of the disease is not recognized and an effort is made to "cure" them by tonsillectomy, extraction of teeth, or the giving of medicine. These persons can often be greatly helped in various ways but anyone who knows them well knows that they cannot be changed overnight by any type of medication. Even the members of the patient's family who, one would think, would sometimes recognize the nature of the trouble rarely can or will do so.

Many and many a time when I have told one of these psychopathic women that what she needed was four months of rest she has answered indignantly, "You are wrong; that is all I have been doing for the last year and it doesn't do any good." Years ago this answer used to bother me and make me wonder if perhaps the patient was right and I should allow her to have the operation she craved and which she insisted would cure her over night, but now I know that these patient do not rest; they may be at home or in bed but their minds are constantly working at high tension, and painful emotions of all kinds are racking them day after day and night after night.

They worry about their illness, they fear not only the diseases that they might have but many that could hardly be present. Some spend much energy trying to diagnose their own troubles and to decide on the proper treatment. Those who are poor or entirely dependent on their earnings lie awake night after night wondering if they can get well before their money gives out; wondering where they can turn to borrow more funds, wondering who will look after their children, and having horrors over the thought of winding up in the poorhouse, or in the city hospital.

Some are grieving over the death of a dear relative and accusing themselves bitterly of sins either of omission or of commission. Some spend endless hours going over painful experiences with former physicians, or in wondering how much better events would have turned out if at certain crises in their lives they or others had done differently. They might get well if they could only give up the habit of holding "post-mortems" over everything. Some indulge in tantrums of temper in which they turn bitterly on everyone about them, and even on those who have been their most

devoted friends. These "storms" naturally leave them spent and worn and contrite, and with digestion all upset.

Others have religious and moral doubts and no matter how gentle and quiet and devoted a life they may have led they torture themselves with the idea that they have committed the unpardonable sin, whatever it is; others fear that they may have inadvertently robbed the government of a few postage stamps or have broken some law or failed to declare all their goods to the tax assessor. Others worry over every conceivable thing; over their health or over the health of loved ones. They fear dirt, and germs, and they scrub at their houses until they and their families are worn out.

Many of those who complain bitterly about intestinal auto-intoxication and who each day take a purgative and several enemas do so only because they are markedly psychopathic. Their particular phobia is that toxins arising in the bowel are responsible for their queer behavior and that if something is not done the brain is going to be destroyed.

Some of the women are insanely jealous of their husbands and they wear them-

selves out with their fears and passions and bitter reproaches. Finally, perhaps, they come to see that their behavior is driving the husband from them and from the home, and then they have something even worse to worry about.

Even when they are happy they are sometimes too happy. I remember a young woman who after a night at the opera would be a nervous wreck. For days and weeks before she would excite herself to a high pitch of anticipation; then she would go to the depths of despair for fear that the actuality might not come up to her dreams, and finally she would have an emotional debauch over the experience itself.

Many others, of course, are ill because of the emotion that is wasted in grieving over a lover who departed years before, over a broken engagement, or over a child who died. Hard things come at some time to most persons in this world but it is the psychopath who never forgets and who never stops grieving and thinking of what might have been. The main difficulty of these people seems to be an inability to see things in their proper proportions. Many of them are "feebly inhibited."

Most of us, fortunately, are able to stop and think for a moment before we act; we have some ability to shut off unpleasant and unprofitable lines of thought, and one sensible part of our brain exerts control over other more childish and foolish parts. These poor people whom we have been considering often see the great need for such control and the advantages to be derived but somehow or other they cannot seem to get themselves in hand. In many ways they are grown up children, and their responses to unpleasant experiences continue to be those of a spoiled child.

The essential point for the physician to remember is that these persons complain of depression or weakness or fatigue which is out of all proportion to the amount of physical abnormality that can be found or to the amount of work that has been done. A number of them give up early in life and never do any useful work again. Some of them manage to putter around a bit, but anything like real work or any mental strain soon reduces them to a helpless state. In all these cases *the physician must focus his attention on the weakness of the patient and on his or her inability to stand*

up to the strain of life, and not on the aches and pains in the abdomen.

The physician must be on the lookout always for those who are on the borderline of insanity or definitely insane because they can make endless trouble for him. It is very dangerous to do any operating on them because afterwards they are rarely satisfied and they love to start a long vituperative correspondence or sometimes even a vindictive lawsuit. At all times they require the most tactful and careful handling.

CONSTITUTIONAL INADEQUACY AND ASTHENIA. Physicians sometimes use the term constitutional inadequacy to describe the condition of the thin, nervous, flabby, weak-backed girl who has never been strong and probably never will be. There are, of course, many men of the same type. The only possible way in which to cure them would be to begin all over again with a different set of ancestors. Some so-called asthenics should doubtless be placed in this group but I reserve for them a less opprobrious term because so many of them, though physically handicapped, drive onward with such keen, active, idealistic brains that they succeed in doing much of

the constructive work of the world. I have never been able to decide whether they are tired because they were originally endowed with too little strength, or because they spend what they have so recklessly in an effort to do three men's work in a day.

HYPOVARIANISM. I place in a separate group those women who show a masculine type of distribution of hair on face, breasts, abdomen, and legs and who sometimes have defective pelvic organs, painful and scanty menstruation, and sexual anesthesia. Many, of course, have only one or two of the signs and symptoms. For the sake of brevity I continue to label this polyglandular defect with the term "hypovarianism." I think it important that the gastroenterologist recognize this syndrome because so many of these women suffer with nervous indigestion, mucous colitis, and constipation. Many of them go to the physician primarily because they are unhappy and poorly adjusted; some are restless because they have not married and others who are married are worried because their sex life is puzzling and unsatisfactory to them.

These women seldom confess their real trouble unless the physician, noting the

physical signs, suspects the presence of the psychic difficulties and tactfully opens the way for them to talk. Some day I hope that with the new ovarian hormones that are now being isolated and purified we will be able to give these women real help.

ENTEROPTOSIS. Years ago I would have classified a number of the thin, congenitally handicapped patients as victims of enteroptosis but now that I know how commonly this condition is found in healthy persons, I doubt the wisdom of ascribing symptoms to it. Some persons doubtless feel better while wearing a good corset or an abdominal support but this does not convince me that enteroptosis is a disease. The good which these women often derive from a sojourn in a sanitarium is due probably not so much to the fat which they put on as to the rest which they get.

I think I would as willingly ascribe symptoms to a large navel, to a hooked nose, or to flaring ears, as to a mobile cecum or to a redundant sigmoid flexure. The bowel is a muscular tube and I doubt very much if its position in the abdomen has much influence on the rate at which its contents are passed onward. Certain it is that innumerable

persons with the most pronounced ptosis imaginable are perfectly healthy. I think it foolish to raise the foot of the bed during the treatment of these patients because it sometimes adds to their discomfort and I doubt if there is ever any need for it.

MIGRAINE. I fear that many physicians do not yet know the dangers of operating on patients with severe migraine. The attacks of nausea, vomiting, prostration, and severe abdominal pain may strongly suggest the presence of cholecystitis, but the good clinician will continue to question the patient until he is sure that there is never any indigestion between attacks, and never an attack without preliminary headache. If the cerebral disturbance always comes first, operations must not be done. I have seen patients with this disease who have submitted hopefully to one useless operation after another; usually first appendectomy, then cholecystectomy, then gastroenterostomy, and finally the taking down of the gastroenterostomy. Surgeons must learn that in these cases it is useless to open the abdomen because the disease is not there. It is probably up in an irritable spot in the brain from whence there spreads out

down the vagus or splanchnic nerves a "storm" similar to that which produces the abdominal crises of locomotor ataxia or the vomiting of seasickness. Even when gallstones are found their removal may have no effect on the course of the disease.

MUCOUS COLITIS. This is another condition which accounts for much unnecessary opening of the abdomen. At operations on the pelvic organs of women I have looked at these sensitive colons; on a few occasions I have had part of one removed, sectioned, and studied minutely, and I have not been able to detect anything wrong. I have seen the surgeon remove half of the colon and cure the constipation which was thought to be the cause of the mucous colitis, and still the patient continued to lie on a couch with a hot water bottle over the place where the cecum used to be.

It seems to me obvious that the disease is not a true colitis. In most cases there appear to exist, first, a congenital predisposition; second, a hypersensitiveness to many types of stimuli; and third, perhaps some local source of irritation in the pelvis. That the disease is often purely nervous in origin can be seen from the fact that

occasionally a man or woman who has never had trouble before will, after heavy nervous strain, suffer a violent attack and will pass a large mucous cast of the bowel. That there are other, possibly metabolic, causes is indicated by the fact that the disease sometimes makes its appearance in middle-aged men who have not been particularly nervous.

I think it is unfair to frighten patients by telling them that they have colitis simply because they are constipated or because roentgenographs of the colon show a tendency to spasm. The ending, "itis," as used today in medicine means inflammation. The term colitis, therefore, should mean inflammation of the colon and it should, I think be reserved to describe those cases in which ulceration or inflammation can be demonstrated.

In many cases also I think it is well to take away from the patient the idea that the "colitis" is going to be cured. He or she must learn sooner or later that it is not so much a disease as a symptom of a hypersensitiveness which is likely to bother off and on for years, and they must stop trying to cure themselves by strenuous courses of

treatment directed toward clearing the mucous out of the bowel. The colon in these patients is so sensitive that they are often made worse by such treatment, and they get relief only when measures are directed to the improvement of the general health. These persons must be taught that the disease can be lived with and largely ignored if nervous hypersensitiveness is reduced, if constipation is relieved by mild measures, and if roughage is largely eliminated from the diet. Especially when these invalids are shown that the attacks often follow heavy nervous or emotional strain, they tend to lose much of their fear of the disease and they become more tolerant of it.

INTESTINAL ALLERGY. There are doubtless a great many cases in which the cause of the disease is an unrecognized hypersensitiveness to certain foods. Often it will be found that the patient has relatives who are subject to asthma or hay fever or eczema and the patient himself may have suffered at times from these diseases. The physician will, of course, be suspicious of allergy when hives are complained of, but he must often think of the disease even when there

have been no manifestations in the skin. I have seen a number of cases of proved sensitiveness to food in which there was never any complaint of hives.

In some patients the eating of the offending food will produce an intestinal upset somewhat resembling that of mucous colitis. In addition there may be headache, irritability of the bladder, and pain in the muscles and joints. Sometimes the whole abdomen feels sore. In the worst cases the patient knows that from childhood on he has been susceptible to certain foods, some of the commonest of which are wheat, eggs, milk, berries, and shell-fish. In rare instances the reaction to eating an oyster or a clam will be so violent and distressing that the victim will never willingly repeat the experience. Unfortunately for the clinician, in most cases the symptoms do not appear until many hours have elapsed. Sometimes they are delayed for a day or two and this makes it difficult for the patient to connect cause with effect.

Sometimes the cause can be found if the patient will keep a diary showing what he has done and what he has eaten. At other times the tests for skin sensitiveness will

give a hint as to the offending food but ordinarily they are of little use. The best way that I have found of detecting the harmful articles of diet is to simplify the experiment and have the patient live for four or five days on only a few foods. I often begin with meat, rice, butter and sugar, foods which seldom cause trouble. If on this diet the symptoms disappear, other foods can then be added one at a time, and all those that give trouble can be eschewed. Splendid results can sometimes be obtained in this way.

CONSTIPATION. There is a large group of cases in which flatulence and other symptoms of indigestion would probably disappear and an excellent result would be obtained if the physician could only find some way of emptying the large bowel without at the same time upsetting conditions in the small bowel and the stomach. The patient first becomes constipated; this causes back pressure in the digestive tract; the plug in the rectum keeps gas from moving onward and escaping, and this leads to the formation of more gas.

Several things may then happen. The patient may resort to purgatives which

upset him; they rush the food too rapidly through the bowel, they interfere with digestion and they lead to the production of gas. It has always seemed to me that in these cases the use of purgatives is illogical because so often the stagnation takes place only in the last 8 inches of the colon, and it seems so foolish to upset digestion in the first 20 feet of bowel to clean out the last 1 foot. The logical procedure would be to wash out this last segment of bowel with an enema, and actually in many cases this proves to be the best solution of the problem.

Unfortunately some patients and many physicians are afraid of enemas; they believe that their use constitutes a bad habit which will lead to injury of the bowel. I cannot believe this, and although I have been looking for years I have never seen a case in which I thought such damage had been done. The man who has an extremely sensitive colon will often tell the physician that he cannot take enemas because they cause so much irritation; they do not flow in or out easily, and for hours afterward he has to keep passing small amounts of water and mucus.

These difficulties are often due simply to the fact that highly irritating soapsuds or plain water is employed, and they disappear as soon as the patient is taught to use nothing but physiologic salt solution. This can be obtained by adding a rounded tablespoon of table salt to 2 quarts of warm water. It is not irritating because it has the same concentration of salt as exists in the blood.

It is fashionable nowadays to treat constipation by the addition to the diet of bran, rough fruits, vegetables and other avowedly indigestible substances, but as might be expected, these materials often cause trouble. Those persons who have the digestion of an ostrich can stand filling the bowel with refuse, but those who have frail, easily upset intestines cannot tolerate such a heavy overload. Some of these persons fill with gas, a few rapidly lose weight, and occasionally one is found whose health is seriously impaired. Contrary to present popular belief many of these patients are hurt less by mild laxatives than by rough indigestible food.

The use of hydrocarbon oil is also inadvisable in many cases because as one would

expect, it can interfere with digestion. Probably the least harmful of all the substances now being used to increase the bulk of stools is agar. Unfortunately it is not a pleasant substance to swallow except when it is incorporated in bread or suspended in milk or breakfast food. Prune pulp, another good bulk-producer, is easier to get down. It is now packed conveniently in cans by the Van Camp Corporation.

FLATULENCE. In many cases in which flatulence is the principal symptom no cause can be found. It is a good thing always to find out at the start if the patient really has an excess of gas in the abdomen. By flatulence one person may mean belching, another bloating, and another, an increased amount of flatus. If belching is the only symptom, and especially if it is kept up for half an hour at a time, the patient is probably not flatulent at all but is an air-swallower. He has a bad habit which he can break if he will. Obviously it is useless to treat such a patient by changing the diet. In many cases the desire to belch is due purely to nervousness, in others to high blood pressure or to an embarrassed heart, and in others to gallbladder disease. Bloat-

ing is seen so commonly in women with gallbladder disease that whenever this symptom is present, one must think of cholecystitis first and last and all the time. If, however, there is no history of pain in the right upper quadrant of the abdomen, if the cholecystogram is perfect, and if the patient is nervous and unhappy, the physician should be slow to advise operation, because the chances are great that a cause for the symptoms will not be found and in that case, a cure cannot be expected.

After watching many belchers with the roentgenoscope, I can say that few of them are able to force the air past the cardia and into the stomach. When occasionally they do succeed in getting a mouthful of air into the stomach they bring it up with a particularly loud noise which gives them peculiar satisfaction, and sometimes causes them for a time to desist in their efforts.

There is another type of patient who unknowingly and quietly and for reasons that I do not understand swallows much air, particularly at mealtimes. Unfortunately the nitrogen in this air cannot be absorbed; it has to be passed all the way

through the bowel and this is what causes the distress. It tends to be caught in the splenic flexure which often becomes widely distended. It pushes the left leaf of the diaphragm up into the chest and gives the patient a desire to belch.

In other cases it is possible that flatulence is due to arteriosclerosis of the mesenteric vessels and perhaps also to disease of the liver. In many cases no definite cause can be found and the treatment becomes difficult and unsatisfactory. Only when there is an increase in the amount of flatus or when the roentgenogram shows the typical distention of the splenic flexure can one be sure that there is an increase in the amount of gas present in the bowel. Patients think the gas is in the stomach but, except in infants, I have rarely seen enough in the stomach to cause discomfort. Contrary to popular belief there is rarely any fermentation in the stomach. Its contents are too acid and the food does not remain long enough for gases to be formed. It is a strange fact that if one examines with the roentgen ray the abdomen of a patient who thinks he is bloated one will seldom see much gas. It would appear that the distress which is

interpreted by the patient as due to gas must be due to abnormal peristaltic activity.

DIARRHEA. In a large number of cases of diarrhea no cause can be found. There are reasons for believing that in many instances the basic trouble is nervousness and often the physician must largely disregard the diarrhea and must treat the patient primarily for the nervousness. One must always look for parasites in the stools, a lack of hydrochloric acid in the stomach, and ulcers in the rectum. If the patient is never waked at night by the diarrhea it is probably not due to a true colitis.

CHAPTER III

HINTS IN REGARD TO THE TAKING OF A HISTORY

“You will remember, of course, always to get the weather-gage of your patient. I mean, to place him so that the light falls on his face and not on yours. It is a kind of ocular duel that is about to take place between you; you are going to look through his features into his pulmonary and hepatic and other internal machinery, and he is going to look into yours quite as sharply to see what you think about his probabilities for time and eternity.”—O. W. Holmes.

CHAPTER III

HINTS IN REGARD TO THE TAKING OF A HISTORY

IN spite of all the advances that have been made of late in laboratory and roentgenologic methods of searching for disease, a good history, carefully taken and skillfully interpreted, is still the most important single factor in making the diagnosis in most cases of indigestion. I have already emphasized the importance of taking the history again and again, and of questioning relatives or the family physician who have seen the patient when he or she was acutely ill.

The trouble with the average history which is taken by a practising physician or an intern is that it is too short and choppy. It does not give a clear-cut consecutive story of everything of medical interest which has happened during the life of the patient. It may have opened up wonderful possibilities for further questioning but these opportunities were not grasped. Thus, it may say in the history: "In 1910 and 1915 the patient had ptomaine poison-

ing." The consultant goes inquiring and soon finds that none of the relatives who ate the same food were upset and that really the location of the pain and its radiation were typical of gallstone colic. A little more questioning and it becomes apparent that the bloating and nausea and dizziness of today are part of the picture of an old cholecystitis that has been flaring up off and on for many years.

Reading further in the intern's history one will find the bald statement: "In 1912 the patient had a nervous breakdown." If we go into that carefully a host of important facts may come to light. He may have had tuberculosis; he may have been so deranged that he had to be confined in an asylum, or he may have had business or family troubles which are still torturing him to such an extent that there is no chance of our helping him until conditions can be improved. If we do not ferret out these things the patient will not respect us because he knows in his heart that we have not gone to the root of his troubles.

A little further on in the history we read, "In 1918 the patient had appendicitis." Why stop there? Let us go into this story

and form our own opinion. Does it sound as if the patient really did have appendicitis? Was there a series of attacks and were they typical, or was the patient rushed to the hospital the minute he had a severe stomachache. Did the operation do him any good? Was the abdomen explored and if so what was found? Was the wound drained or was the patient seriously ill for weeks? If so, there are probably a lot of adhesions in the abdomen. At times it pays to write to the surgeon who performed the operation to learn what he found and what he did.

These are some of the clues which the specialist or the wise old doctor follows up because he knows that at any moment he may run onto something in the past history which will enable him to make a diagnosis. Time and again in years past I have been called in consultation by some physician who thought he had a difficult case. He gave me such a short and imperfect history that I had to question the patient for myself, and shortly there came pouring forth a story, perhaps of gallstone colic with faint jaundice, which made the supposedly difficult case seem ridiculously easy. Under

such circumstances, I have seen the physician turn to his patient and say with more or less irritation, "Why didn't you tell me this?" and the answer very properly was: "You didn't ask me, Doctor, and I didn't know it was important."

One of the rarest phenomena about a hospital or clinic is a young physician who will take a history so complete that when it comes to the final summing up the chief will not have to take it all over again or spend half an hour or more filling in the gaps. An intern often seems to take a history simply because it is one of his duties or because there is so much paper that has to be filled in. He asks certain questions because he has been taught to follow a certain routine and the answers given seem to have no influence on his subsequent thought or behavior. The consultant asks questions for one purpose only and this is to make a diagnosis. He may start inquiring more or less at random at first but soon he will be getting "hunches" and from then on every symptom elicited will be thought of as supporting one tentative diagnosis or another, and every answer given will have its influence on the next

question asked. Every clue will be seized upon and followed to the end.

PRINCIPAL COMPLAINT. The first thing to do in taking a history is to determine if possible what is the principal complaint. Patients often have many troubles and it is helpful to know which they consider to be the most important. Often the physician will stand before the problem of complicated disease much as a logger stands before a huge jam or a miner before a blocked ore chute. Dynamite one "key log" or get a crowbar under one particular piece of rock and the trouble is over. Here, let us say, is a man with high blood pressure, gall-stones, kidney stones, a large prostate, and a toxic goiter; which is the key disease and which should be treated first? To some extent the physician will follow rules which he has learned from the study of pathology but often he will be guided best by the indications that he gets from a good history.

THE ONSET. The next thing to do is to find out if the patient ever had a good digestion and if so just when it failed. The invalid must be cross-examined on this point because if left to himself he will generally forget the earlier stages of the

disease. At this point in the examination one begins to get some hint of the diagnosis because if indigestion has come suddenly out of a clear sky it may be due to cancer, but if it began around the age of twenty years with attacks of pain it is probably due to ulcer. A diseased appendix will often give trouble in youth while gallstones will often produce their first symptoms during pregnancy. Nervous asthenic persons will often state that they cannot remember ever having had a good digestion.

PERIODICITY. The next question is: does the trouble come in attacks. If it does, one will suspect strongly that the cause is an organic one. Especially when the intervals are characterized by entire freedom from indigestion one will strongly suspect the presence of ulcer. As I have already said, the patient with functional troubles has to be careful about his food all the time except perhaps when he is on a vacation. The duration of the attacks and the length of the intervals between them should also be inquired into. Gallbladder disease will often cause severe pain for a day or two and then leave the patient alone for years, while the symptoms of ulcer are likely to

last for several weeks or months and then to go away for six months or sometimes for a few years.

PAIN. The symptom which helps most in making the differential diagnosis between serious organic trouble and milder functional disturbances is pain. Again, one must cross-examine the patient to make sure that what is called pain at the first interview is not more a distress or a feeling of burning or of gas-pressure. If pain is complained of one must inquire into every detail about it: when it comes, where it is felt, and how it radiates. The patient should be asked to point to the part of the body in which the pain appears because the way in which he or she does this is often highly significant. Sometimes it can be brought out that there are two pains.

The physician will want to know what seems to bring the pain on and how it is relieved. Is there any definite relation to meals? Is it severe; has a physician ever been called and did he give morphine? The giving of morphine for upper abdominal pain generally means the presence of gall-bladder disease. I usually ask if the patient is afraid to eat. Particularly when I am

dealing with a stout woman who has a good appetite, I can be sure that if she is starving herself it is because the pain has been severe enough to frighten her.

One should ask particularly if the pain wakes the patient at night because anyone who is wakened out of a sound sleep and has to get up and walk the floor, go to the kitchen for food, or to the bathroom for a dose of sodium bicarbonate is surely not a neurasthenic. Something is radically wrong, something that can probably be relieved only by surgical intervention.

It is helpful to find out if the pain is made worse by jolting, because this is a symptom of definite inflammation somewhere.

Pain or epigastric distress requiring the frequent use of alkalis is usually due to organic disease. If the patient has a box of sodium bicarbonate in his pocket it is not safe to call him a neurasthenic; he probably has an ulcer. Pain which is relieved by the passing of gas or fecal material or which is relieved by an enema is probably produced in the colon or in the nerves supplying it.

TENDERNESS AND SORENESS. Especially when there is a history of attacks of pain and distress it is well to ask if there

is residual soreness because this will strengthen the suspicion that there is some sort of inflammation in the abdomen.

THE REVERSE PERISTALSIS SYNDROME. I think it important to find out if the patient has any of the symptoms which may be grouped in what I call the reverse peristalsis syndrome. These symptoms are vomiting, regurgitation, heartburn, water brash, belching, nausea, a feeling of fullness as soon as the patient starts to eat, a coated tongue, a bad taste in the mouth, and a feeling of back-pressure against the diaphragm. They all suggest to me the presence of an organic lesion which is irritating some segment of the digestive tract and sending off waves which travel back toward the mouth.

One must be careful in diagnosing organic disease of the stomach and bowel when these symptoms are lacking, but their presence does not preclude the diagnosis of a functional type of trouble. Some or all of them are seen in highly neurotic persons, in pregnant women, and in men and women with fevers or other weakening diseases. In all of these conditions there seems to be a flattening or reversal of the gradient of forces which I believe maintains

the downward direction of peristalsis, and, under these conditions, waves can easily run backwards. (See Chapter VI.)

REGURGITATION. Sometimes when the patient says that he or she vomits what is really meant is that there is regurgitation. It is commonly seen in nervous girls; in them the food comes up without nausea and apparently without effort.

BELCHING. As I have remarked elsewhere in this book it is extremely important to find out whether the belching is occasional and spontaneous or whether it is long-continued and due to the swallowing of air. Air-swallowing is something like scratching, the more one does the more one wants to do, so the best thing is to stop and wait until the distress ceases. When I want to know how expert a belcher a particular patient is I ask him in a matter of fact way to belch for me and often he complies. It is essential to ask if the patient really bloats or has much flatus because these are the symptoms that indicate that he really has an excess of gas in the bowel. It is well to ask, also if the flatus has a bad odor because if it has some of it has probably been formed by fermentation in the

bowel and if it has not, it probably consists mainly of swallowed air.

“ACID STOMACH” AND HEARTBURN. Many of the sensations of burning which are complained of, particularly by nervous patients, appear to be located in the skin. Careful questioning will show sometimes that the burning is a parasthesia which moves here and there over the body. The term water brash probably signifies the return of gastric contents into the pharynx. Acids cannot be felt in the stomach but they can be felt when they regurgitate into the throat. There appear to be different types of heartburn but I think, all are produced by abnormalities in gastric peristalsis which cause waves to run back to the cardia and perhaps a little way up the esophagus. There is a peculiar tight, tense, somewhat burning sensation at the upper end of the stomach; there is a strangling feeling that interferes with respiration, that makes the sufferer try to belch, and that sometimes ends in a hiccup; there is a burning feeling back of the sternum or up in the pharynx, associated with belching and acid regurgitation, and finally there is a little wave that gurgles up the esophagus and sometimes out the Eustachian tubes to the ears,

NAUSEA. When the patient complains of nausea I think not so much of disease in the stomach as disease affecting the lower bowel. In women I think immediately of pregnancy, disease of the pelvic organs, nervousness, or cholecystitis. If it is a young woman I look her squarely in the eye and say, "How are your love affairs coming along?" If she does not immediately give me a frank, convincing answer I say, "Come on now, let us have the whole story; it will do you good to tell someone about it"; and it often does. Freud has pointed out that nausea in nervous women may be a sign of disgust over a disappointing love affair, and I have seen some cases which would support this view.

VOMITING. One wants to know if the material comes up with ease or with difficulty, with nausea or without nausea. Some persons vomit so easily that with them it represents a reaction to only a slight discomfort. It is well to find out whether the patient empties the stomach by sticking the finger down the throat because this may mean much less than if the vomiting occurs spontaneously after many hours of suffering. Vomiting immediately after meals is

commonly hysterical in nature. That which is due to obstruction at the pylorus generally comes after many hours of discomfort. One will ask if the patient has seen again food eaten many hours before because this will indicate the presence of definite disease at the pylorus.

If there has been any sign of blood in the vomitus one must ask how much there was. Sometimes streaks of no significance will appear after prolonged retching. If there ever were tarry stools one must ask if they were associated with definite weakness and anemia. With a hemorrhage of any size the patient will generally have to go to bed. If there still remains doubt as to the nature of the tarry stools, one must find out if any drug such as bismuth or iron was being taken at the time.

LOSS OF WEIGHT. This is always a serious symptom unless it is learned that the patient has for some time been taking very little food. The invalid may have been afraid to eat; he may have thought that a fast would be good for him, or some physician may have put him on starvation rations. Not infrequently there has been too much roughage and too little protein. With per-

sons who have lost weight and have become highly nervous one must always think, of hyperthyroidism and must ask the necessary questions to see if it is worth while to estimate the basal metabolic rate.

SLEEP. It is strange that so many physicians forget to ask about sleep. Especially in the case of nervous patients insomnia may be the secret of all the troubles complained of. The physician will try to find the causes of the insomnia; poor habits of going to bed, small children in the home, worry, a snoring husband, too much brain work in the evening, and so on.

CONSTIPATION. If the patient complains of constipation the first thing is to find out how long it has been present. Naturally, if it has been present for years the symptom is not so menacing as it is when it has but recently appeared. One must also find out whether the patient is really constipated or whether he means that he has been taking a laxative every night for years. If so, he really does not know whether he is constipated or not. If he would leave himself alone for a few nights he might find that the bowels would move by themselves. The physician must find out what methods the

patient has tried for the relief of constipation because when it comes to treating him it will be useless to prescribe measures that he has already worn out or found useless.

HEADACHE. Many persons with migraine go to the gastroenterologist because they cling to the hope that if only the vomiting and other gastrointestinal symptoms could be relieved they would be well. Actually, as I have pointed out elsewhere in this book, their gastrointestinal troubles are generally secondary to the disturbance in the brain and there is little that the gastroenterologist can do for them. The essential point is to find out clearly whether there ever is any indigestion without headache. If the digestive upsets are always secondary to the headache the trouble is not in the abdomen.

JAUNDICE. If the patient has had jaundice one must often go into minute details in regard to the illness. In many cases it is infectious in origin and of little significance while in other cases it indicates definite disease in the biliary tract. Occasionally it is a familial disease. It would be beyond the scope of this chapter to describe the fine points in making the differential diagnosis.

DIETETIC HABITS. It is helpful to find out what the patient eats and how he eats. Does he bolt his food, does he overeat, or does he have rows with his family at every meal?

CHAPTER IV

THE HANDLING OF THE NERVOUS
PATIENT

“True influence over another comes not from a moment’s eloquence nor from any happily chosen word, but from the accumulation of a lifetime’s thoughts stored up in the eyes. And there is one thing greater than curing a malady and that is accepting a malady and sharing its acceptance.”

—Thornton Wilder.

Canst thou not minister to a mind diseased;
Pluck from the memory a rooted sorrow;
Raze out the written troubles of the brain;
And, with some sweet oblivious antidote,
Cleanse the stuff’d bosom of that perilous stuff,
Which weighs upon the heart?

—Shakspeare, Macbeth.

“Do not be like the spider, man, and spin conversation incessantly out of thine own bowels.”

—Samuel Johnson.

“What are the most scientific physicians if they know all things save the human heart?”

—Clifford Allbutt.

CHAPTER IV

THE HANDLING OF THE NERVOUS PATIENT

I HAVE always felt sympathy for anyone with "nervous indigestion." I feel sorry for those who early in life find themselves equipped with a nervous system so frail, so sensitive, or so poorly balanced that it breaks down under even the ordinary stresses of life. I feel sorry for those who started with a good body but who later broke it down either through ignorance or folly or force of necessity; some had burdens put upon them heavier than they could bear, while others met with misfortune, disappointment, unhappiness, and grief. I feel sorry for those who on account of hypersensitiveness and illness and strain have become so crotchety and unpleasant that they repel those who might otherwise help them, and I feel sorry for those who while seeking for help and guidance, fall into the hands of men who wittingly or unwittingly rob them, maltreat them, and make them worse.

It is a sad fact that nowadays many of these patients get from their medical advisers not the rest that they so badly need but an operation. Instead of being given sedatives and a better diet they are rushed to the hospital, there to part with an innocent appendix, harmless tonsils, or doubtful teeth. At first sight this may seem inexcusable, but anyone who has ever, for an hour or more, struggled ineffectually to get an intelligible and consistent story out of a nervous or psychopathic patient will understand how it is that some physicians and surgeons adopt the, for them, time-saving practice of opening the abdomen and trying to make a diagnosis in the operating room. Sometimes it works but too often it doesn't.

DIFFICULTIES IN TAKING A HISTORY

If it were not so tragic it would be amusing the way in which some nervous patients actually thwart the physician in his efforts to analyze their troubles. Instead of answering the questions that are put to them in regard to their symptoms they keep rambling off onto a recital of their unpleasant experiences with various physicians, and no matter how hard one tries to head them

off they insist on talking mainly about the various diagnoses and prescriptions that have been made. Some of them, however, appear to recognize their deficiencies and at the second visit they come fortified with a list of symptoms to be mentioned and of questions to be asked. Others, again, try to save the time of the physician by writing him a ten-page letter describing their experiments with different diets and remedies. Some of these traits of behavior may seem reasonable enough and yet they are seldom met with except in patients with functional troubles.

It is doubtless impossible for anyone at the first attempt to give a clear-cut, sequent, or complete story of the illnesses of a fairly long life; on thinking things over and especially after talking to relatives, detail after detail is bound to come back from oblivion, and with every attempt at telling, the account is sure to change somewhat. This is true in the case of intelligent patients with organic disease but it is particularly true in regard to the nervous or psychopathic patient who is suffering with functional troubles.

Not infrequently the wise physician will refuse to let a patient be operated on because the history which at first indicated the presence of, let us say, gallbladder disease was not told twice the same way. The "pain" which at the first interview was said to be under the right costal margin was toned down later to "a feeling of distress" or moved down to the region of the appendix, and the "jaundice" of one day became "sallowiness" on the next. The rule, therefore, is that if one wants a reliable history one should take it several times and then one should compare it and amend it with one secured from a relative.

CONCEALMENT OF ESSENTIAL FACTS

Consciously or unconsciously many patients conceal from the physician their real reasons for consulting him. I have known women who complained only of a vague indigestion when their presence in the office was due really to their fear that they had contracted venereal disease from a recently divorced husband; others were worrying over a sexual anesthesia which they feared would eventually cause them

the loss of a husband's affection, and others said nothing about the fact that some one had recently told them that they were suffering with cancer, or about the fact that they had found a nodule in the breast: I have often had women assure me that their homes were happy when actually they were anything but that. The last thing that will be admitted even on persistent questioning is that there is insanity in the family. I have known this to be denied even when the patient was intelligent enough to know how important it was that I be acquainted with the facts.

In many cases there is an easily understandable reason back of this desire for concealment. The patient who is told that his troubles are almost certainly functional often refuses to believe it; he maintains that there is something radically wrong in the abdomen, and he is not going to be satisfied until it is found. After he has watched several physicians jump to the conclusion that his symptoms are neurotic in origin he can hardly be blamed for trying so to alter his story that the next one will not be prejudiced but will continue to search for organic disease. Actually if the physician

is wise and if he hopes to keep the confidence of one of these doubting patients he too should do some concealing. He will do well to conceal the fact that at the first interview he has learned enough from the history and from the behavior of the patient to satisfy himself that the trouble is primarily or wholly functional.

BEHAVIOR OF NERVOUS PATIENTS

Years ago when in private practice I had an experienced secretary who sometimes made the diagnosis of a neurosis over the telephone. I remember one day when she warned me that I was in for a bad time. A man had called in for an appointment and had asked that at least an hour be reserved for him because his was a most difficult case and one that would call for the exercise of all my skill. Finally he arrived, an excitable little man in spats, and sitting down, he announced that the recital of his symptoms would be long and harrowing, and that the suffering was so great that he didn't know how or where to begin. I suggested that he begin with the symptom that annoyed him most. This rather stumped him but after a little reflection he said,

"Well, look at this complexion of mine; you wouldn't call that healthy, would you?"

The experienced physician is "tipped off" not only by such behavior in the telling of the history but he will notice many other tell-tale signs. He may note that the patient is depressed, sullen, diffident, hard to get acquainted with or else "painfully nice" or abnormally keyed-up and gay. He will notice also many signs of emotional and nervous irritability such as tearfulness, fidgeting, spasmodic contractions of the muscles of face or neck, trembling, biting of nails, wringing of hands, cracking of knuckles, tearing at a handkerchief, blushing, excessive perspiration, or jumping as if shot when the telephone rings. After watching such behavior the physician knows that from the hypersensitiveness alone the patient must be ill or at least very uncomfortable.

It is a temptation to tell the victim this at the first interview and to start immediately with the necessary psychotherapy, but I think we physicians would be wiser if more often we would hold our peace and go ahead quietly with a careful "overhauling." By doing this we would make

a better impression on the much traveled patient who would think, "Well, here at last is a man who without prejudice is going to treat me as if I were a sensible human being with something organically wrong." During the days in which we are making the examination we can perhaps be gaining the confidence and the respect and the friendship of the patient, and when the final interview comes and we have to say that no serious disease has been found, the quiet sermon which we will then preach will have some chance of falling on receptive ears. Actually, the best artist at handling these patients whom I ever knew would never allow one of them to tease an opinion out of him until all the evidence was in.

Often, too, the nervous patient is right in his insistence that organic disease be looked for and found, and if at the first interview the physician talks much about nerves he will later have cause to regret it. Unfortunately, the psychopath, the "asthenic," and the overworked and broken-down nervous wreck is anything but immune to cancer, tuberculosis, high blood pressure, and other serious diseases, and some of the worst "neuroses" I have

known proved later to be suffering with diseases that could easily be demonstrated. On the other hand, of course, there are innumerable nervous persons who turn away dissatisfied from competent and honest physicians who have told them the truth, to place their trust in ignoramuses or scoundrels who injure and rob them. The human desire for a positive diagnosis of definite organic disease causes many of these patients to fall easy prey to those who are willing to tell them unequivocally that a vertebra is out of place, that the stomach is "dropped," that the appendix is diseased, that the colon is inflamed, or that the brain is being ruined by intestinal auto-intoxication.

I must hurry to add that there are, of course, many exceptions to the statement just made. There are many sensible persons who are greatly relieved to hear that their troubles are functional in nature. Once their minds are put at ease they either pay no more attention to their discomforts or else they so modify their lives that they are soon rested and well. On rare occasions I have had the interesting experience of seeing a patient who at the first interview confessed frankly that he or she was probably "nothing but a neuro."

Even when the trained and careful clinician slips a bit in the diagnosis and fails to recognize the presence of, let us say, gallstones, he may yet be perfectly right in his opinion that the symptoms are mainly or wholly nervous in origin and that the only treatment that will ever do any good is a rest-cure. One of the highest tests of a physician's or a surgeon's skill and good sense is his ability to say in certain cases that the gallstone or ulcer that has been demonstrated by roentgenologic examination has little or nothing to do with the symptoms, and that operation will not bring relief. He knows that a neurotic or psychopathic woman is not going to be made over in a fortnight by any operation, no matter how "successful"; and since the patient in any case is going to need much reëducation and medical treatment, he decides that she had better begin with this and leave the operation for the last resort.

Patients often doubt the physician's ability to recognize these differences between human beings but they must see that it would be impossible for anyone endowed with ordinary intelligence to listen day after day and year after year to men

and women telling their stories of disease without learning something about the various types of humanity with which he has to deal. He could hardly help noticing that some patients complain too much and others too little, and after a time it would dawn on him that those in the second group are cured the minute their pain is removed while those in the first group are likely to develop two new aches for every one that is taken away.

It is a curious fact, well known to every clinician, that the patients with large cancers gnawing at their vitals are slow to complain. Many go about their business until they are too weak to get out of bed, and many seek relief only when forced to do so by their relatives. When the physician tells such a person, as he so often has to do, that it is too late for operative removal of the growth, and that there is little that can be done, the answer is generally a brave one. I have never heard such patients complain or rail against fate. Often they say: "It is no matter; I have lived my life, my children are grown, and I am ready to go."

It is always somewhat of a shock and an annoyance to turn, sobered, from such an

interview to the consideration of the endless complaints of someone who can show no sign of organic disease, who perhaps has every comfort in life, and who yet complains that his cross is greater than he can bear, and perhaps there is some extenuation for the physician who loses patience and scolds. The truth of the matter probably is that nervous patients commonly do suffer more intensely and more continuously than do persons with organic disease. There is no question that the symptoms that accompany a nervous breakdown are real, and there is every reason to believe that a greatly increased irritability of the nervous system should cause much suffering.

DIFFERENCES IN SENSITIVENESS

Normally we human beings feel well because our body cells everywhere are doing their work silently and unobtrusively, and the messages that come from all parts of the body are reassuring. However, just let the nerves become overly irritable, as through fatigue or a bout with some infection, and the brain is soon wearied and frightened by the novel sensations that come flowing in upon it. The victim becomes

conscious of the beat of the heart, of the movement of waves over the stomach and of the contraction of muscles in the skin. The involuntary nervous system loses its normal well-regulated balance and its usual even control over the circulation, and as a result the slightest stimulus is likely to cause the victim to become dizzy, to break out with gooseflesh, to flush, to sweat, or to shake with chills. In many ways he becomes uncomfortable and uneasy; he is like a man on a lonely road with an old automobile which is developing all sorts of new squeaks and knocks; he is sure that something is radically wrong and he knows that disaster impends.

It seems to me that the hypersensitive patient is in somewhat the plight of a woman whose story I once heard. Although extremely nearsighted she managed to reach middle age before she was given her first pair of glasses. A half-hour after she left the office of the oculist the police rescued her on a busy street corner where she had become hysterical and paralyzed with fright. The world which had hitherto been to her a pleasant, soothing blur had suddenly become full of people with unpleasantly

sharp faces and full of huge automobiles which seemed to be bearing down upon her from every direction. The shock produced by this multitude of new sensations was too much for her, and in a few minutes she found herself a nervous wreck. She, fortunately, could shut out in a moment this annoying crowd of sensations simply by taking off her glasses, but the poor man or woman who has acquired hypersensitiveness through years of overwork can get relief only slowly and with the help of sedatives and rest.

The difference between the reactions to discomfort of the insensitive, stolid type of patient and of the highly sensitive nervous type can often be recognized as soon as the individual is put into the hospital for observation. The man or woman who complains little about serious organic disease will appear to be satisfied with everything while the nervous patient will complain bitterly about the room, the food, and the nursing. I recently saw a woman who for months had been treated elsewhere for colitis because the bowel movements sometimes were loose. After hearing her story I decided that the real trouble was a severe nervous breakdown and

I was sure of it as soon as she went to the hospital. There in one day she moved four times, searching constantly and in vain for a room that would suit her. One can easily see how a woman who was so sensitive to her surroundings would have to be a nervous wreck; everything would cause her annoyance and fatigue.

These differences in temperament doubtless account for the fact that the intelligent person who is suffering with ulcer or cancer will usually tell his story of pain, heartburn, or vomiting in from five to ten minutes, while the nervous person with "functional" troubles can talk for hours about innumerable aches and pains and distressing feelings here, there, and everywhere. The patient with ulcer will generally know what bothers him most and he will always tell his story the same way; the nervous patient is so uncertain as to which is the most important symptom that one day he lays stress on the stomachache, the next day on the headache, the next day on the backache; and perhaps only after several days will he come out with the essential facts, which are that he is so nervous that he could jump out of his skin,

so blue that he could weep, so weak that he cannot do half a day's work, and so worried about himself that he must willy-nilly keep up his pilgrimage from one physician to another.

Perhaps the most important difference between the two types of humanity is a difference in sensitiveness to pain. The man who goes to sleep in the dentist's chair, and strange as it may seem there are such, cannot be expected to respond to disease as does his sister who is so sensitive that she can hardly stand a single touch of the drill; and actually, Libman has shown in the case of certain forms of heart disease, that the clinical picture is different in the two types of patients. The effect of insensitiveness is well shown by animals in the zoo and by the insane. One day they are apparently normal; two days later they are dead, and necropsy shows the body riddled with the lesions of tuberculosis or other serious disease. A normal man with similar lesions would have been incapacitated and in pain for weeks or months before the end.

Human beings vary markedly also in their physical responses to emotion, and

much of what we honor as bravery is probably nothing more than insensitiveness and lack of imagination. I have an idea that we physicians should more often be asking patients how they respond to a sad book or a sad play: do they weep and feel torn to pieces or do they sit dry-eyed and unmoved? When sufficient research has been done we may find that we can in this way differentiate in a moment those persons whose involuntary nervous system is overly responsive and likely to be played upon by every emotional strain, and those who cannot easily be upset by anything. There must be many gradations in emotional responsiveness between the woman who vomits steadily for two weeks when she hears that her mother has cancer of the stomach and the murderer who digests perfectly the breakfast eaten on the morning of his execution, and I believe the time is coming when we clinicians will have to measure these differences and allow for them in the making of all our judgments.

PRACTICE AMONG NEUROTIC PERSONS UNSATISFACTORY

Obviously the cross-examination of nervous patients requires much time, much

sympathy, much patience, and some skill, commodities which unfortunately the purchaser cannot always locate or command even when his purse is full. It is all the more unfortunate, therefore, that many of those who suffer with nervousness are so impoverished by illness that they cannot hope to pay adequately for the great amount of time that they take up. The busy specialist with expensive offices would lead a far happier and a much easier life if he could only send many of these persons away the minute he sizes them up. In the time that he must devote to one of them he could easily care for ten patients with peptic ulcer or gallstones.

Actually there is one type of patient whom I think he might as well try to get rid of as soon as possible because with them I doubt if he can ever do anything more than waste his time. These persons, usually women, can immediately be recognized by the fact that they do not listen to what the physician has to say; they are constantly interrupting, and it soon becomes obvious that they haven't sufficient power of attention to grasp and retain the instructions that are given them. Furthermore, they

either refuse to try the medicine and diet prescribed or else, after seeming to acquiesce, they go out and do exactly what they please. Fortunately for the consultant such patients can often be referred back to that long-suffering man, their home physician. Sometimes I have said to them frankly, "Here, you are wasting your money and I my time, let us part company while we are still friends."

TEMPERAMENTAL FITNESS OF THE PHYSICIAN

There are a few physicians and some charlatans who through the force of an unusually magnetic personality are able to dominate and help and satisfy the type of woman I have been describing. In this connection every physician should read the delightful "Story of San Michele" by Axel Munthe. It is the autobiography of one of Charcot's pupils, a man of rare charm and ability who for years had a large and fashionable practice, first in Paris and later in Rome. I doubt if anyone could read this book without being impressed with the fact that for a certain type of practice the

physician must be born; he cannot be made out of ordinary clay.

It is to be regretted that many physicians are temperamentally unfit to handle even the more reasonable and easily helped types of nervous patient. The big strongly built man who hasn't a nerve in his body is often particularly handicapped because he cannot imagine how anyone could possibly suffer in the absence of demonstrable organic disease. He bristles with animosity as soon as he gets the drift of the story; he feels that the woman before him is entirely responsible for her plight and he wants to take her over his knee; he impugns her veracity; he scolds and he sneers, and he ends sometimes by openly reviling.

He sincerely believes that what the patient needs most is a harsh dressing-down that will shake her out of her mood of self-pity and that will put back-bone into her. Such physicians should I believe be honest enough to put up a card in the waiting room to the effect that "Nervous persons need not apply here because they will receive neither courtesy, proper attention, nor help." I am just mean enough to hope that every such man will some day suffer

a nervous breakdown so that he can learn how real and how trying the symptoms are, and how embarrassing it is to find himself in the office of an unsympathetic and doubting physician with nothing objective with which to back up his claims of suffering.

When I hear such men speaking harshly about nervous patients I often think of the experience of a friend of mine, a brave little woman who all her life has waged a winning fight against the insanity that has attacked many of her relatives. At the time of the menopause, when a number of trying symptoms appeared, she consulted a well-known clinician who, as soon as he heard the story, began to abuse her and to call her names. She drew herself up with dignity and said, "Doctor, I know that my symptoms are psychic and nervous in origin; I know that of late some of my thinking has been muddled, and I know that some of my behavior is unreasonable, but I can no longer lift myself out of it all and I came to you for help. If you cannot or will not give it to me, say so and I will go elsewhere."

DANGER IN BEING HARSH WITH PATIENTS

There is one good reason why physicians should never show signs of unbelief in a

patient's story or contempt for his suffering, and this is that in a number of cases the subsequent course of the illness shows that there was plenty of cause for the misery and the pain. *How fine it would be if all physicians would learn that their failure to find any cause for pain does not give them the right to say that there is no pain.* To illustrate: an intelligent sensible little woman was seized one day with severe pain which began in the epigastrium, and bored through into the back. For a time there had been a little indigestion about four hours after meals, but with the onset of the severe symptoms this was forgotten. For months she was in bed; much of the time she was in hospitals, and some of the time she had to be kept under the influence of opiates. She was examined thoroughly time and again; scores of roentgen-ray films were made but no sign of disease could be found. Then the attending physicians decided to try rough methods; they accused her of malin-gering, of wanting to slide out of her household duties, and of wanting to become a morphine fiend, and for weeks they left her to lie awake all night in pain. They even poisoned her husband's mind against her so

that he might join in the general persecution. Finally she escaped from them and went to other physicians who found that a duodenal ulcer had perforated and had allowed acid gastric juice to eat back into the pancreas and into the big nervous centers on the front of the spine. Her exoneration was complete and no longer was there any doubt about the fact that she had been suffering the tortures of the damned. As she said to me afterward, she and her family could easily forgive the failure in diagnosis but they would never condone the (well-intentioned) brutality and unkindness shown her by some of her medical advisers.

I sometimes laugh at my own experience along these lines, an experience which taught me much. Shortly after moving into a new laboratory I began to notice at intervals a strong odor of escaping gas. I called in the engineer of the building who went over the cocks and changed one which he thought might be leaking. For a few weeks the odor was less troublesome, and then it came back in force. Again the engineer came, we went over the pipes together and thought we found a leak. Again there was a

period of improvement and again the smell became unbearable. During the next six months or more I called in that engineer half a dozen times. He, a heavy smoker, could never smell any gas so he had to accept my word that it was present.

Often I stood the annoyance as well as I could, keeping the windows open, and hating to call in the man because he never could find anything wrong, and I knew in my heart what he must be thinking of me. Many times it must have occurred to him that I was probably a neurasthenic, a fussy person with a hypersensitive nose and a worrisome disposition. Perhaps he thought the trouble was all in my head, and that I had simply been upset by reading some article on the dangers of chronic carbon monoxide poisoning. I watched him closely for any sign of such an attitude but he was a gentleman and neither by word nor deed did he ever show the slightest doubt of either my sanity or my veracity. Finally one day a brilliant but sadly belated idea came to me; I took a piece a heavy rubber tubing and with its help threw compressed air at high pressure into the gas pipes. Immediately there came a loud hissing from

behind a heavy chest of drawers, and when this was moved, there at last was the long looked for leak—a crack in a defective piece of pipe.

At last I was justified and I felt that feeling of satisfaction that comes to a sorely abused and long-suffering woman when the surgeon hands her a bottle full of gallstones removed from her abdomen. And how grateful I remain to that engineer for the fact that he never for a moment openly questioned my good sense.

It must be obvious that no physician can ever hope to be correct in all his diagnoses. No matter how careful and scientific he may be he is bound to make mistakes if only because often when symptoms first appear they are not characteristic of any one disease. Thus, as every one knows, when a child has a reddened throat and a little fever the chances are that he is coming down with a cold, but there is also a possibility that in the next few days he will break out with measles. Similarly a man who complains, let us say, of backache probably has a little lumbago but it is always barely possible that he has smallpox, and a man who is vomiting may have either a transient

attack of indigestion or (very rarely) the earliest symptoms of an, as yet, undiagnosable tumor of the brain.

NEED FOR KINDLINESS

If only, then, because these possibilities exist, every physician must expect to make mistakes, and if only for this reason he should be kindly with his patients because he does not know to which one he will some day be looking for forgiveness. Fortunate it is for those of us who practice medicine that it is human to forgive and to forget; and if a man has been thorough in his examination and honest and sympathetic in his dealings he will seldom have much to fear. Again and again he will find that in spite of unfortunate failures in diagnosis and in treatment he will retain the good will, the respect, and the friendship of the patient and his family.

I have never forgotten the answer which a rancher friend of mine gave me one day when remarking on the ankylosed and badly deformed elbow of his otherwise beautiful daughter, I asked if he did not sometimes feel bitter against the man who had set it so badly. "No," he said, "that was done

by old Doc up country. My wife and I know now that he should never have left the arm in a cast for weeks, and we know that with such a dangerous fracture he should have sent us to the city for the expert help which we could easily have afforded, but Doc did the best he knew how; he was devoted to the little girl, and when he took the cast off and found what he had done he was as broken-hearted as we were. We couldn't hurt him any worse than he was hurt already so we have never said a word about it."

THE NEED FOR REALLY LIKING PATIENTS

Since most of us are poor actors the only sure way of getting our patients to feel that we are friendly and sympathetic is to be friendly and sympathetic. To those physicians who were not born with a liking for their fellow men and who do not make friends easily and naturally I can only say that if they will take the trouble to draw out even their most unpleasant patients, if they will study them a little more intently, and come closer to them, they will almost always find something to like and to admire.

I will never forget the rampaging old lady with a Ph. D. after her name who years ago on her first two visits to my office stormed up and down the waiting room and caused such a disturbance that my nurses threatened to leave unless I would attend to her ahead of others who were waiting and get her out of the way. On the second visit something in the woman's eyes and voice caused me to pause and say to her, "Here, your bark is worse than your bite; you are blustering simply because you are so nervous you do not know what to do. Come, stop it." with that she burst into tears; she apologized, and after she had had a good cry, she became a different person. Cranky and irritable as the old lady was with her life-work stopped and her blood pressure climbing, I soon came to like her very much and to look forward to her visits; she was a "character"; a globe-trotter who had been everywhere and had lived a remarkably interesting and useful life.

I remember also the meek bald-headed little man who at the age of fifty-three years came in with the request that we examine him thoroughly and assay his

fitness for assuming the duties and responsibilities of matrimony. I thought him a rather poor specimen of humanity until his brother-in-law told me his story and then I came to like him and to respect him as he deserved to be respected. Thirty-eight years before I met him, the severe illness of his father had thrown upon his boyish shoulders the staggering burden of supporting his parents and several small sisters. Faithfully and cheerfully through the years he devoted all of his small earnings to keeping the home together. After some years he buried his father, then his mother, then one by one he supplied trousseaus for his sisters until, the week before he came to see me, the last one was married off. Then and then only did he begin to think of marriage for himself.

I could tell many such tales but lack of space forbids and I hope I have made my point, which is that we must always look for the best in our patients, and we must always be tolerant and charitable because we never know what adverse winds may have beaten upon and warped the soul that is before us.

As Osler has so beautifully said, "Deal gently then with this deliciously credulous old human nature in which we work . . . Curious, odd compounds are these fellow-creatures, at whose mercy you will be; full of fads and eccentricities, of whims and fancies; but the more closely we study their little foibles of one sort and another in the inner life which we see, the more surely is the conviction borne in upon us of the likeness of their weaknesses to our own. The similarity would be intolerable, if a happy egotism did not often render us forgetful of it. Hence the need of an infinite patience and of an ever-tender charity toward these fellow-creatures; have they not to exercise the same toward us?"

SOME NERVOUS PATIENTS ARE SENSIBLE AND CONTROLLED

I need hardly say that not all nervous patients are fussy and queer and a trial to the flesh. Many of them are good, fine, sensible, likeable persons who are ready to coöperate cheerfully with the physician as soon as they know what they must do to get well. All that most of them want to know is that there is nothing seriously

wrong, nothing that is going to get worse. Many have awakened in me the strongest feelings of respect and admiration for the way in which, in spite of years of suffering, they have remained well-balanced, uncomplaining, and lovable, and many of them I am happy to count among my friends.

Early in the course of their disease these sensible persons may have recognized the importance of maintaining their morale and of not complaining so constantly as to wear out the sympathy of their relatives. Perhaps, however, I am giving them more credit than they deserve. If I refuse, as I do, to blame severely those who are born with a frail hypersensitive nervous system and an easily frightened and complaining nature, I should, to be consistent, refuse to compliment those who were born with a more sensible and stoical nature.

Much may depend also on the way in which the individual is trained as a child. I should think that the one who is petted and pampered and fussed over every time he comes crying to his mother with a bit of skin off his knee ought to be somewhat of a whiner all his life while the one who is taught to pick himself up and go about his

play without a whimper ought to be the better for it all his days.

THE VALUE AND THE DANGERS OF FORCEFULNESS

Some may ask: but if kindliness and sympathy are so important in the practice of medicine, how is it that some gruff, bad-tempered, and even profane physicians have large and devoted followings? I think there are several reasons for this success. All such men whom I have known were unusual characters; they stood out from the herd, and they possessed those qualities of leadership and that personal prestige which are indispensable if one is to attain large success in the practice of medicine. Most of them were kindly at heart, and when the patients discovered this they readily forgave the gruffness and discourteousness.

Some of these physicians owed much of their success to an intense, almost insane egotism, which made them absolutely sure of the correctness of their diagnoses and of the need for implicit obedience to their orders. Nervous patients dislike signs of weakness, doubt, and vacillation in their medical advisers; they have enough of this

sort of thing in themselves, and for this reason the practitioner who is ignorant, or heedless, or crafty, or crazy enough to be positive in all his pronouncements has a considerable advantage over his more honest and more scientific brothers.

Positiveness of diagnosis has always, since the beginning of time, been the main asset of the quack. He does not have to worry about mistakes because more suckers can always be had for the advertising. The man who should worry but who apparently does not is the type of physician who makes a practice of telling patients positively that they have this or that when actually the information which he has secured is barely enough to justify a guess at the diagnosis. Hardly a week passes that I do not see someone who says, "What am I to think? One physician has told me that I have gallstones, another that I have an ulcer but no gallstones, another that the trouble is in the appendix, another that it is in the colon, and still another that it is all in my head. Surely they cannot all be right." This sort of thing is, of course, deplorable. Every time that someone with cancer is told definitely that he is only a "neuro";

every time that someone who needs only a little rest is told definitely that he has cancer, and every time that someone with a purely nervous heart is told definitely that his days are numbered, serious injury is done not only to a patient and to his physician, but unfortunately also to the cause of scientific medicine as a whole.

The wise physician can generally steer a way past these difficulties by being positive on some points where he is sure and reticent on others where he is in doubt. If he has thoroughly examined an intelligent patient and has found one of the rare or more poorly understood diseases he will seldom be the loser for confessing frankly that he knows of no satisfactory treatment. It is no disgrace to the individual physician that medical science has not yet put into his hands a cure for every disease. Every year experimental laboratories throughout the world are giving forth new knowledge, new methods of diagnosis and new methods of treatment, and with this we must all, physicians and laymen alike, be content.

Although I believe in always telling patients as much of the truth as they have intelligence to receive, I do not see the need

for trying to burden them with everything I know about their diseases. If while examining them I were to tell them of all the horrible diseases that they might have, the complications that might arise, and the ways in which death might overtake them, many would soon be as worried and hypochondriac and unmanageable as the average physician is when his health begins to fail. He knows too much; he is on the watch for new symptoms; he fears the worst, and these fears make his recovery difficult. Many and many is the time that some unguarded and unfortunate word or sentence let fall by me, or by some physician who saw the invalid before I did, has given rise to endless worry in the mind of the patient and endless effort on my part to repair the damage done.

THE PHYSICIAN A LEADER. Some dictatorial physicians are particularly fitted to handle a type of patient who when sick wants to lean on and trust in the strength of his medical adviser. Some of these men and women when well are so accustomed to dominate others and to ride rough-shod over them that when they fall ill and the physician is called they start to lay down

the law to him. If he acquiesces and shows signs of weakness he is lost; he becomes their servant and not their guide; they are ill and somewhat frightened and like soldiers in a tight place they want a good captain and they want him "hard-boiled."

I will never forget my first interview many years ago with a man who in his day was one of the ablest criminal attorneys in the West. When he arrived the lion-maned old gentleman was so restless that he wouldn't sit down. Instead he paced up and down the room firing at me the account of his symptoms. Finally he turned on me as savagely as if I had been a hostile witness and began to tell me just what I was to prescribe and not to prescribe, and just what he would and would not do. For a moment, young as I was, I was somewhat intimidated by this attack, but thinking rapidly I saw that with such a man half-way measures would be useless so I rose and said, "It seems to me that for a man whose time is worth perhaps a hundred dollars an hour you are behaving in a most remarkable way. Here you are telling me how to treat you. How much cheaper and easier it would be for you to treat yourself

at home without any connivance on my part. In fact I cannot yet see why you should be bothering with me at all. If you ever should decide that you want my advice I will give it to you, but in the meantime wouldn't it be better if we didn't waste each other's time?" For a moment he stood and glared at me, then he smiled, sat down, and in a much friendlier mood, asked me what I thought he should do.

A similar technic must occasionally be employed in handling the pampered and tyrannical wives and daughters of wealthy men. Those who are used to hiring anyone they wish to do their bidding must learn that with all their money they cannot order their physician around. He who wishes to have their respect and trust must occasionally dismiss them, perhaps somewhat banteringly but nevertheless firmly, with instructions to return only when they have decided that it is worth their while to behave themselves and do what they are told. With those who have little sense it does not work, but with others it works like a charm; they beg to come back and ever afterwards behave much better.

THE PATIENT WHO IS NOT READY TO BE CURED

There are a few women who have been invalids so long and have found so many privileges attached to their position in the family that, like morphine fiends, they must first be given some motive to get well; in other words, the advantages of good health must be presented attractively to them before one can hope to get their coöperation. At times their attitude can best be summed up in the unconsciously clever phrase of a child who said to his mother "I wish I wanted to do that."

Occasionally one meets a nervous woman who holds back and is afraid to be cured too suddenly of some hysterical disorder. She might perhaps be blamed by the family if it became known that the aches and pains which had caused them so much expense and trouble were psychic in origin. It is perhaps largely for this reason that some of these patients refuse to give up unneeded crutches when told to do so by physicians and wait until Aimee Semple McPherson or some other such artist comes along.

I sometimes tell these patients the story of one of the most honest persons I ever

met. She was a little old woman who years ago came into my ward in the San Francisco City Hospital with large varicose ulcers just above the ankles. As soon as they were cleaned up and ready for skin grafting the nurses started to prepare her for operation. She then sent for me and asked how long it would take to get well. I answered that if all the grafts took she would be out in a few weeks. After a moment's deliberation she said she did not want the operation and would rather go home. As I kept pressing her for a reason she finally said, "Doctor, I have been nursing those ulcers now for twenty years and I couldn't lose them that sudden!" There are others like her but I have never seen one so frank. Some of them are women who feel that they should keep grieving over the death of a mother or other relative. They cling to their grief as a penance for sins, imagined or real, and I suspect that they would look upon any signs of returning health as a mark of disrespect to the loved one.

FEELING ONE'S WAY

One of the greatest needs of the physician who is to deal with nervous patients and

particularly with the somewhat hostile, critical, much traveled, or psychopathic ones is a sixth sense which will give him, from moment to moment as he talks, some idea of the type of response that he is getting. If he is ever to have much success in this type of practice he must learn to watch for every sign of emotion, of interest, acquiescence, antagonism, or annoyance that flits across the face of the person before him. If he sees that inadvertently he has given alarm, he must stop and reassure; if he has preached a little too pointedly and has caused resentment he must stop to soften his words and to express sympathy; if he has failed to make things clear he must try again with simpler speech; if the patient is hedging on certain questions or deliberately lying the physician should suspect it; if he has touched some long-hidden sore he must sense it immediately because tactful questioning may then lead him directly to the real cause of the disease; if he is antagonizing the patient he must know it and must try another tack; or if the patient is becoming fatigued he must quickly terminate the interview. Time and again the tone in which a woman has

answered a question or the way in which, while giving a certain answer, she has shot a glance at her husband has served as a clue to lead me directly to the cause of a neurosis.

The physician who is inclined to "kid" patients and to be jovial and familiar with them is in particular need of this sixth sense to tell him when he is "getting by with it" and when he is not. Some physicians have the personality to do this sort of thing while others who try to imitate them have not, and there are many patients so dignified or so lacking in a sense of humor that no sensible person would ever think of taking liberties with them. I can remember once slipping quietly away from a consultation because I could no longer stand the sight of a young physician patting on the back and trying to banter a retired army colonel, a man so stern that I suspect even his wife didn't dare to call him by his first name. I could see that the older man was writhing under the treatment; I was afraid that murder was going to be committed, and I did not want to be a witness. Perhaps I need hardly add that the otherwise brilliant young physician who committed

this faux pas soon after gave up trying to get a practice, and accepted a position as a full time teacher of medicine.

The physician will do well to feel his way also when he is talking over plans for treatment. He must realize that there are many intelligent persons nowadays who have a prejudice against taking medicine and who do not like to be fussed over. The minute they find that their symptoms are not due to serious disease they want to forget about them and they do not wish to bother with any treatment. Whenever I detect this attitude I say no more because it seems to me that everyone has a right to do as he pleases. I never plead with a patient to take treatment unless I fear that by neglecting his health he will injure others, or I foresee that with his particular disease he is likely to return later, begging for help, but with lesions too far advanced for a cure.

Another type of patient is the one who wants more medicine than the present-day physician is inclined to prescribe; he wants tonics; he wants to be put on a strict diet, and he wants to be told just what to do and not to do about eating, exercising,

resting, working, sleeping, smoking, and drinking. If he doesn't receive all this he may, instead of asking for it, go away dissatisfied, and with a feeling that he has been neglected. There are some persons who actually judge of the value of the medical service given them by the number of bottles and pill boxes they have received; they like to have something tangible to show for the money that they have paid out. Again, the physician who is sensitive to the moods of his patients will recognize this type of person in time, and will see to it that satisfaction is given. If it is not, the patient will only go elsewhere, and perhaps to a quack.

The physician will sometimes have to feel his way also when it comes to the ordering of the various laboratory and roentgenologic examinations. In the presence of a difficult problem one must of course get everything done that is necessary, even if the patient cannot well afford it. At other times when the diagnosis is perfectly clear from the history and physical examination, the conscientious physician will try to spare the patient further expense unless something tells him that he is dealing with the

type of person who will not be satisfied until every test has been made.

I remember a blind man who once traveled a long distance to consult a famous oculist. The physician saw at a glance that the corneas were gone and that nothing could be done, but he sat down and spent some time with the man, examining him in various ways and asking him many questions. Finally he told him kindly that nothing could be done, gave him a prescription for some eye water, charged him fifty dollars, and let him go. The oculist's son turned to his father and said, "Why did you waste your time and then take so much money from a man who, judging from his appearance, could ill afford it? Did you not see at a glance that the eyes were gone?" "Yes," answered the father, "I hated to take his money but if I had dismissed him in a moment and charged him five dollars, he would have been dissatisfied and he would have kept going from oculist to oculist until he had spent more than I took from him. Now he will probably go home."

Many a time in private practice I have tried to save a poor patient money by not ordering laboratory work and consultations

which I was almost certain would throw no light on the diagnosis only to learn later that he used all I saved him and more to go to someone else who he heard would make every conceivable test and would be more high priced than I. The worst such case I know of is that of a physician, a friend of mine, who on going into a shack to see a sick child found such want that instead of making a charge he gave the mother five dollars with which to buy milk. A few days later when he stopped in to ask how the child was he was told that it was well, but little thanks to him except in so far as the money that he had left had enabled them to get "a good doctor"!

I have often thought that if a physician only knew just what to say and what not to say to each patient his success would be phenomenal. The possibilities of making trouble for oneself by saying too much are so great that many of the most successful practitioners fall into the habit of saying practically nothing. When asked for a diagnosis, they grunt evasively, and when it comes to the matter of treatment they give only the briefest instructions. One such physician who is somewhat deaf once

admitted to me that his infirmity had its good points.

IMPORTANCE OF EDUCATING THE PATIENT

Personally, I never could dismiss patients in this way because I feel so sure that intelligent and worthwhile treatment of anyone with a tendency to chronic recurrent illness must consist primarily of education. The sufferer must be given some idea of the inherited tendencies, and of the influences and bad habits that have caused his illness, and he must be shown how to avoid them. If he is to follow a diet faithfully I think he should have some idea why the physician thinks certain foods are helpful and others are harmful, and in every phase of the treatment, efforts should be made to secure his intelligent coöperation.

The nervous patient, like the diabetic, is curable only so far as he can be educated and taught to care for himself. I believe we physicians attempt the impossible whenever we try as we do, in a few minutes to change the lives and cure the bad habits of the patient before us. It would be hard enough if the patient could understand and remember all we say, but usually in the

excitement of the interview much is forgotten and much is mixed up. In the future I think we will more often give out small carefully prepared booklets of instruction that can be studied at home. Many patients will not read them, but this perhaps will be their misfortune.

THE MAIN SERVICE RENDERED TO SOME NERVOUS PATIENTS

The conscientious consultant who wishes to give good service for every dollar paid to him is likely to be discouraged if he looks over a series of records of nervous patients. Let us suppose that he picks one at random and finds therein the story of a woman who has, to begin with, poor nervous heredity; then strain, boredom, and unhappiness at home, hard unpleasant work in a dingy office, hours of labor that are too long, wages that are too small, and grief over a fiancé who has departed. At the end of the history sheet there is a note to the effect that sedatives and a diet were given, and the patient was "discharged with instructions." Back home she must have gone, then, with her stomach-ache and her nerves just as bad as when she came.

Perhaps she too was wondering what she had gotten for her hard-earned money. Were the instructions which she received worth what they cost? Was there much chance that they could or would be followed, and was there any hope that her life could be so remodeled and her weak body so strengthened that the symptoms would all clear up?

Often it is hard to see how the miracle can be performed, and if good advice were all the physician had given he might well be dissatisfied with himself and with his craft. But let him read further in the history sheet and I think he will find a record of services rendered that were worth more than the patient could ever pay. Here it is: "Patient comes because she has been told that she has a gastric ulcer and that she must submit to operative removal of half of the stomach. The roentgenologist has been unable to see any sign of ulcer and there is nothing in the history to suggest the presence of one. Operative interference is therefore strongly contraindicated." This is the important point. The physician found a much worried person who was about to submit to an ill-advised operation, a person

who did not realize the importance in her case of fatigue and unhappiness and asthenia, and who for years had been hoping to get her cure out of a bottle or in an operating room. She was rescued and was given a new point of view. She may not for some time be able to do all that she has been advised to do, but she can work slowly in the right direction; she has a better understanding of her problem; she has hope and she is not going to hazard her life and her future health by a false move. This surely is worth much.

PLEASANT ASPECTS OF PRACTICE AMONG NERVOUS PATIENTS

In a number of places in this chapter I have emphasized some of the unpleasant and difficult features of practice among nervous patients. Fortunately there is also a very pleasant side. In order that we physicians may really help our nervous patients and prescribe for them such treatment as will be practicable and attainable we must come closer to them than we do to any other group of persons who enter our offices. Often they become our friends and in return for the help we give them they

give us much valuable knowledge of human nature and of disease: knowledge which we immediately turn to good use in the helping of others. Every practitioner of medicine before he dies must become somewhat of a philosopher and preacher, and much of his training will come from these patients.

Many is the time that I have felt inclined to curse the day when a certain nervous woman entered the office but always I have ended with the conviction that aside from a friend made and some good done, the experience and the knowledge of human nature gained was well worth the effort. Occasionally also we physicians are made happy by learning that through our efforts someone whom we found hopeless in the "slough of despond" has climbed out and has again found his place as a happy and useful member of society.

CHAPTER V

THE TREATMENT OF NERVOUS
INDIGESTION

"Now abideth diet, drugs, rest, these three, but the greatest of these is rest."—Wethered.

"And this I know, moreover, that to the human body it makes a great difference whether the bread be fine or coarse; of wheat with or without the hull, . . . baked or raw— . . . Whoever pays no attention to these things, or paying attention, does not comprehend them, how can he understand the diseases which befall a man? For, by every one of these things, a man is affected and changed this way or that, and the whole of his life is subjected to them, whether in health, convalescence, or disease. Nothing else, then, can be more important or more necessary to know than these things.—Hippocrates.

"Lighter than air is psychotherapy. Do not practice it consciously. You are training yourself to be a humbug. Have a thorough knowledge of your subject which entitles you to speak with conviction; be sincere in your dealings with your patient so as to gain his confidence; have sincere sympathy . . . which ought to manifest itself without obvious demonstration; be practical in your advice and talk to the patient and his surrounding in common sense terms and you will have practiced psychotherapy honestly and successfully.—S. J. Meltzer.

CHAPTER V

THE TREATMENT OF NERVOUS INDIGESTION

HAVING in mind that ancient recipe for rabbit stew which begins with the injunction, "first catch your rabbit," I begin this chapter with the suggestion that the physician first be sure of the patient's neurosis before he begins to treat him for it; as I have already pointed out there may be something else present besides nerves. When one sees how often the skilled gastroenterologist, with every form of technical assistance at his command, makes the mistake of treating as a "neurotic" some one who has gallstones, a tumor of the spinal cord, incipient tuberculosis, or cancer of the stomach, the need for caution becomes obvious.

SYMPTOMS ARE REAL

If only, then, because we may be mistaken, we physicians should be particularly careful to avoid conveying to our patients the impression that we think there is nothing the matter with them. They may be

changes in the diseased body, but that we so often do find them.

Our fondness for calling patients unpleasant names, such as "neuro," "neurasthenic" and "hypochondriac," doubtless makes for us innumerable enemies, and it certainly swells the ranks of those who go in for the various forms of quackery. As we ourselves sometimes discover, when we fall ill with vague and subjective symptoms, it is heartbreaking to have one consultant after another treat our troubles as a joke, and but thinly veil his impression that we are making mountains out of molehills. And later what a feeling of justification comes over us when some one discovers that, in addition perhaps to a fatigue neurosis, we did have hypertension, an ulcer, or something else radically wrong.

WHAT TO SAY

Hence it is that the handling of the patient, the results of whose examination are negative, requires the greatest care, tact, sympathy and kindness. After reviewing the record and explaining that nothing has been found that would justify exploring the abdomen, I find it well to admit that

although this should occasion considerable rejoicing, it also has its disappointing side. I try to assure the patient of my confidence in the existence of his symptoms, and I remind him that digestion can doubtless be upset in sensitive persons by strong emotion, fatigue, improper methods of eating, or constipation.

If the patient has been overworking and losing a great deal of sleep, I picture to him thousands of delicate brain cells crying out for rest; I suggest that he give heed to their complaint, that he cut down on work, try a simpler diet and better methods of regulating the bowels, and see what happens. If everything clears up, we shall be happy; if some of the symptoms disappear and others remain, or if new ones appear and others get worse, the correct diagnosis may either become obvious or another careful examination may show what is wrong. One great advantage of this method is that I have not burned my bridges behind me. If things go wrong, if new symptoms develop and the diagnosis becomes obvious even to a tyro in medicine, I shall not be humiliated by having my mistake corrected, perhaps by some

unfriendly critic, and I shall not have earned the contempt and enmity of the patient and his family. The most dangerous thing we can do is to try to reform a supposedly neurasthenic person by giving him a harsh "dressing down." It doubtless does good in some cases, but I would rather let the other fellow try it. For one person who can be driven in anger there are hundreds who can be led with sympathy, understanding and friendliness.

METHODS OF HANDLING HYSTERICAL PATIENTS

There are, of course, many hysterical women whose symptoms will disappear after a bit of unpleasant treatment but this can often be administered in such a way that the patient does not realize that she is being subjected to a therapeutic test. Actually in many cases the success of the measure is dependent on the fact that the woman does not know what is going on; if she thought she was being coerced she would fight back and she would not get well. To show what I mean; in my county hospital days, when a woman in the ward began to have noisy attacks of hysteria

my fellow interns used sometimes to pour cold water on her, to nauseate her terribly with apomorphine, to "bawl her out," and in many ways to make it uncomfortable for her. Sometimes this treatment worked; often it did not, and always it made enmity between patient and physician.

I found a room in the attic into which I put a bed and whenever a patient became obstreperous in the ward I told her kindly that it would be better for her and her nerves if for a while she could have complete quiet and a room to herself. I would then have a nurse remark casually to her on what a dark, miserable, lonely room it was, and by night the patient would be begging that she be left in the ward and assuring me that she felt much better and quite certain that the attacks would not return. So far as I can remember I never did send anyone to the attic; the threat was always sufficient. The feature that I liked about my method was that there was no unpleasantness about it; the woman felt that I had acted for her good; she was pleased because I had expressed confidence in her ability to live up to her parole; she was happy to have escaped going to the attic, and she had the

satisfaction of thinking that she had slipped something over on me.

In the same quiet way one can quickly cure the hysterical troubles of some women simply by passing a stomach tube down the esophagus. All the physician has to do is to express the belief that the treatment is going to do a world of good and that as soon as the symptoms disappear the intubation will be stopped. The only unfortunate feature is that there are a few physicians so childish and tactless and lacking in knowledge of human nature as later to stir up the resentment of the patient by bragging to her of their cleverness.

AVOIDING DECEPTION OF THE PATIENT

No one likes to be tricked even for his own good and patients are no exception to the rule. For this reason I have never allowed anyone to give a patient of mine a "sterile hypo," a hypodermic injection which the patient thinks contains morphine but which does not. Some nurse or intern is likely some day to make a sneering remark about the sleep that was obtained with distilled water, and an enemy will thereupon be made for me and for the medical profession.

Friends have to be made and kept in office and hospital just as they are made and kept elsewhere, by friendly, frank, and honest dealing. If we deceive a friend we lose him, and if we deceive a patient, show him disrespect or contempt, lie to him, or treat him like a child or a mental incompetent, we are likely to lose him too. As Beers has shown so clearly in his classic book on "The Mind That Found Itself," the physician must be honest in his dealings even with the insane. They are just as keen as normal persons are to detect attempts at deception, or to remember broken promises, and such behavior has an even worse effect on them than it has on the sane.

The treatment of the functional disorders of digestion may be discussed under four headings: (1) psychotherapy and instruction in mental and physical hygiene; (2) physiotherapy, exercise and massage; (3) diet, and (4) drugs.

PSYCHOTHERAPY

The first and often the most important step in the psychic treatment is taken when the physician makes a complete and careful

physical, roentgenologic and laboratory examination. If this does not reveal signs of serious disease, many persons immediately lose interest in their symptoms and go away satisfied. Another important factor in the psychic treatment is the taking of a good history, and especially a history that brings out all the details of family and business worries, of domestic infelicity or of the phobias that so often are at the bottom of the trouble. Unless these things are done, it is not only useless but often criminal to tell the patient not to worry. Some consult us simply because they have been shocked by the sudden death of a friend or relative. They fear that they too have cancer or heart disease, but they will not admit it, and come complaining of some minor ailment. Especially when dealing with older patients, it is often well to say at the close of the examination: "As we examined you we had always in mind the possibility of cancer beginning somewhere, and we are now glad to say that nothing suspicious has been found."

If the patient is worrying we must not simply tell him to stop worrying, but we must delve to the bottom of his difficulties

because it may be that they have no possible solution, and that if we were placed in his predicament we should be equally sick in mind and body. Under such circumstances it is silly and heartless to tell him to do what we could not do. This is particularly true when the main source of anxiety is poverty and debt, or a marriage that is going on the rocks. Particularly difficult to deal with are the women who cannot make up their minds about getting a divorce, and those who lead a cat-and-dog existence with their husbands but who are chained to them by love for their children. The wrangling at mealtimes seems particularly detrimental to the digestive processes, and as some wise old Jew once pointed out, "Better is a dry morsel and quietness therewith than a house full of feasting with strife" (Prov. 17:1).

Fortunately, much can be done in many of these cases by giving the patient the mental purgation that comes with the pouring out of secret worries into a sympathetic ear. The physician can often help these persons by advising them wisely, and by leading them out of a maze of muddled thought to the point where they

can forgive and forget, and acquiesce to things that cannot be cured. For years I kept in my office a copy of Trudeau's autobiography with a bookmark at page 318 in order that I might turn quickly to his remark that he had learned from his patients that "the conquest of Fate is not by struggling against it, nor by trying to escape from it, but by acquiescence." The "asthenic," the person with mucous colitis, or the one to whom nature has given a "raw deal" can often be made over into a useful and happy member of society if he can be taught this lesson of acquiescence: to stop looking for a cure and instead to settle down to get along as best he can with his handicap.

REST

The next thing in most cases is to see how rest can be obtained with the least expense and loss of income. The sick who are so situated that they must either keep at work or starve can often be taught to hoard their small stock of energy and to live within the limits of their nervous strength. If a vacation is taken, it must be one that will bring the patient back better

off than when he left. Too often our vacations are of the type that caused the Irishman to remark plaintively, "How happy we'd be if it weren't for our pleasures." Many persons spend Saturday and Sunday in ways that do not bring rest and relaxation. Some drive too far in automobiles; others dig too hard in the garden, and others dance too much, or sit too long at cards.

Many nervous persons can straighten out if they will only for a time rest in bed on Saturday afternoons and Sundays. Others must learn the truth of Mosso's statement that all our energies come from one source, and that when mentally tired it does not help to exercise so strenuously as still further to deplete the small store of nervous strength. Others must for a time draw some of their irons out of the fire and give up some of their ambitions. They must perhaps withdraw from active participation in church or civic or social work. Some patients must be guided into less laborious forms of employment, and others must be induced to change their mode of living so that they can get better food and happier surroundings. There is no

detail of the patient's life so trivial that it may not play a part in keeping up a neurosis which is expressing itself in some form of indigestion, and the physician must find what it is and if possible correct it.

If a man cannot well leave his business, he can often, for a month or two, answer his mail and confer with his assistants in the mornings, and can then spend his afternoons at home or on the golf course. I have seen such excellent results from this type of resting that for business men I often prefer it to a complete vacation. The mother with several small children and few resources can also be helped tremendously if she is taught to go back to bed after the children are sent off to school. She may have to continue with mending and sewing but even so, a few weeks of mornings in bed will often work a miracle.

When nervous women are told that they need a month in bed the answer usually is, "Why I couldn't stay in bed even one day, I'd go crazy." My answer is that this very statement proves to me how badly they need the rest that I am prescribing. They are living on their nerves and they are like the man who, finding himself on the verge of

delirium tremens, goes on drinking because he feels so bad when he stops.

THE REST CURE

A rest cure in a sanatorium, with or without overfeeding, is often helpful if the patient can afford it without worrying about the expense. Unfortunately, it is beyond the reach of those who need it most. Unless the sanatorium is a good one, the treatment can be carried out more successfully in the home of a devoted relative. It seldom goes so well in the patient's home because there she is likely to be kept on edge by many annoyances. The doorbell or telephone rings and is not promptly answered; a child sets up a howl or comes running with serious accusations against brother or sister, a servant comes for instructions, and so it goes all day.

If the rest cure is going to be carried out successfully in a hospital the institution must be a good one and it must not be on a busy corner downtown. Hospitals, unfortunately, are not designed or run for the benefit of nervous patients. For instance, their managers ignore the fact that the sick and nervous are slow in getting to sleep,

and are helped most by the rest that they get between 5 and 9 in the morning. Instead of allowing such rest, the nurses have to get the patients up at 6 or 7 o'clock, so that everything can be done and out of the way for medical rounds at 8; it is fine for the physician and the chef but it is hard on the patients.

Another difficulty with hospitals nowadays is that many of the dietitians are obsessed with the desire to stuff their patients with vitamins and iron in the form of greens, spinach, salads and fruits. The dietitian forgets that her guests are going to be with her for only a few days or weeks, and that they could easily get along during this time without any of these substances, and in spite of everything a mere physician may say or do, he is likely soon to find his patients back on spinach, salads, fruit and bran muffins. Fortunately, fads are self-limited diseases, so the time is doubtless coming when spinach will retire into the background, and milk-toast, custards and calf's-foot jelly will again appear on the tray of the invalid.

If the patient is to be fattened, and often this is highly to be desired, there are a

number of details that should be attended to. Needless to say, food for anyone who is not hungry should be well cooked and attractively served. Care must be taken not to put much on the plate, and preferably only one course should be presented at a time. No cod liver oil or agar or other substance that the patient dislikes should be allowed on the tray.

As the patient has little capacity for food the available space in her stomach must not be wasted on substances that have little fattening value. This means that foods must have a high calorie content and must be free from refuse, which will not only be useless but will interfere with the digestion of the really necessary substances such as meat, starch, sugar, and fat. Fats, of course, with their high caloric value, are particularly desirable, and the most digestible one is probably the one that is to be found in butter and cream. These substances can be added unobtrusively to other foods such as soups, purees, mashed potato, cereals, and puddings.

Patients often fear that they will not be able to digest the food that they eat under duress, but actually, if their minds

are at peace, they will digest it and they will gain in weight. I have often seen them gain a pound a day. If they eat the food and do not gain one can be almost certain that they are fretting over something. Usually it is an affair of the heart which is not going satisfactorily. When the treatment does succeed it is a delight to see a woman who at first was thin, sallow, dull-eyed, and listless change gradually into one whose cheeks are full, whose complexion is clear, whose eyes are bright, and whose interest in the world has returned.

Much depends on the nurse who is in charge. If she is cheerful, dynamic, attractive, and friendly she will succeed in getting the patient to eat; she will help in curing bad nervous habits, and during the first week of discouragements and set-backs, she will do much to keep the patient and her relatives in line and willing to give the experiment a fair trial. Once the patient begins to sleep and to gain in weight her troubles are largely over. If she should take a dislike to the nurse the physician should learn of it immediately and make a change.

It is a remarkable fact that nervous persons can fret weight off just as fast as

they take it on. Once they begin to gain they become much interested in the upward progress of the line that is creeping across the weight chart, and they then need little exhortation to eat. Strange to say, after they have been stuffed for a while they often develop an appetite. It is a remarkable fact also that often they have no more distress on an over-feeding diet than they have when living on tea and toast. I tell them that for a time they will have distress no matter what they eat so they had better take more food and become strong again. Some persons will do better for eating something in the middle of the morning and of the afternoon. Others, however, will find that this takes away so much from the appetite for the three main meals that it does not pay.

Visitors may have to be excluded for a time, and particularly those who are tiresome or alarming in their conversation. Massage and heliotherapy will be helpful in some cases. For the first few weeks it is often advisable to keep the patient in bed. Many persons fear that they will be greatly weakened by this but they can be assured that there is no cause for alarm.

I think it essential that during attempts at over-feeding digestion be not upset by laxatives. Fortunately, the increased amount of fat in the diet is often sufficient to relieve constipation, but when it is not, the colon can be washed out every day or two with warm physiologic saline solution.

The foot of the bed should not be raised; there is no need for it and it may cause discomfort. The patient should not be allowed to read too much. At first she may be willing to lie quietly much of the day, and later she can do a little needle work, read a little, or play solitaire.

A rest cure is often helpful diagnostically because the physician and the nurse will have time and opportunity to learn many important facts about the woman: about her discomforts, her bad habits, her worries, her relatives, or perhaps someone whom she wants to have for a relative but for one reason or another cannot. The rest cure can be of help diagnostically also when it does not work. Sometimes after two or three weeks of improvement there will be an acute upset with abdominal pain and vomiting, and the physician will be convinced that he is dealing with organic disease such

as cholecystitis or appendicitis. At other times the temperature chart will indicate that the primary cause of the trouble is probably an infection smouldering somewhere.

SLEEP

Many nervous persons can be greatly helped if they can only be taught to go to bed earlier at night. Many stay up until midnight or later wasting precious hours that should be spent in sleep. When one asks these persons what they do with the time, they have to admit they do not accomplish anything of value. They talk or play cards or listen to the radio or dawdle over some little task. Some say that it is useless to go to bed because they could not get to sleep until after midnight anyway, but I feel sure that they are wrong. Often an hour or more must be spent in rest and relaxation before sleep can be wooed with any prospect of success. Especially when through overwork the muscles have become tense and the brain extremely active it will take some time before the "wheels will slow down." Men and women who must study or write at night should stop work at least an hour

before they hope to go to sleep and should spend the remaining time resting or reading light literature. If they find that insomnia is creeping on them they must stop night work before they lose the ability to sleep or before they go over the edge into a trying nervous breakdown. It is a curious fact that the more tired one is mentally the harder it is to get to sleep, and once the knack of sleeping is lost it takes weeks or months to get it back.

In innumerable cases all the patient needs to bring back his health is relief from insomnia, but unfortunately physicians often fail even to ask about sleep, and thus miss the chance to work a cure. The nervous person needs to get away from his tumultuous and bothersome thoughts; he needs rest, and it should be obvious that little can be done for him until he learns again to sleep. Strange to say many physicians are not only uninterested in the insomnia but they are much disgusted when some one prescribes sedatives for its relief. Time and again I have brought a nervous patient almost back to health and full-time work, only to see her plunged again into insomnia and despair by the angry protests of some

medical friend of the family who apparently did not know that modern soporifics are not related to morphine and are not ordinarily habit-forming.

To be sure, something can often be done to relieve insomnia by teaching the patient to keep his mind off disturbing thoughts, to avoid mental work or exciting conversation after dinner, to take a warm bath and a little food on retiring, and to go to bed earlier. But often these measures fail, or the worries and discomforts that have caused the insomnia cannot be removed, and the only thing that will break into the vicious circle is a sedative drug. The man with a broken leg is not held up to scorn if for a time he uses a crutch, so why should the victim of insomnia be scolded when he uses a somewhat similar device?

Unfortunately, to the layman and to many physicians a sleeping draft still means opium or one of its derivatives, but in this enlightened age this should not be the case. Morphine is a good pain reliever but a poor sleep maker. Its effect is transient and often unpleasant, and its use in insomnia would be worse than foolish. Even after operations I think surgeons would do well

to use more barbital and less morphine; its effects last much longer, it is a sedative to the vomiting center, and it lacks the unpleasant by-effects of morphine. In the form of soluble barbital it can, if necessary, be given intramuscularly.

These newer synthetics have no relation to morphine; they have none of that "kick" that makes the taker wish to repeat his experience, and except in the case of the markedly psychopathic person, I am sure they are perfectly safe. I have been prescribing them for twenty years and have yet to see an habitu  in my own practice. Actually, in a practice limited largely to the diagnosis and treatment of gastrointestinal disease, I have found one of the most useful drugs to be not pepsin or bismuth, but Adalin or carbromal, a sleep producer. Adalin is used in doses of from one to three tablets (5 to 15 grains). For those who are sensitive to drugs, one tablet at bedtime will make all the difference between a restless and a restful night. Barbital, or Veronal, which is so commonly used, produces in some persons headache or a little "hang-over" in the morning, especially if it is taken after midnight. All these drugs are

best given early when the patient goes to bed. If the patient wakes about two o'clock and cannot get to sleep again Bromural is a good drug because it gets to work quickly and it rarely has any bad effect in the morning. The dose is one or two tablets. There are many other soporifics of this type on the market, all more or less related chemically. I mention only those that I myself have tested and found satisfactory. There are a few highly neurotic and psychopathic persons who do not react well to any of these barbituric acid derivatives; instead of becoming quiet they get excited, and if they doze off to sleep they soon waken with nightmares. These patients do better generally with chloral or paraldehyde.

The only trouble I have ever had with all these drugs has been in trying to get patients to use them long enough. They are afraid; they are influenced by alarmed relatives, physicians and nurses, and they give up the "crutch" before they have learned to walk alone.

There is another important point and this is that sometimes patients have enough pain and discomfort to keep them from resting. In such cases relief can come only

when they are given, in addition to the soporific, which does not relieve pain, a small dose of some analgesic. Many physicians refuse the patient such help because they fear the establishing of a habit, but there are many good pain relievers available today which are not habit-forming, and I believe some such drug should always be taken quickly before headache, menstrual pain, or the pain of mucous colitis injures the nervous system and wipes out the benefit that has come, perhaps from several good days of rest. Codein will often give great relief to women with the painful and hypersensitive type of colon, and so far as I can learn it can be used from time to time without fear of habit formation. I often prescribe a capsule containing $\frac{1}{3}$ grain of codein sulfate with 5 grains of acetanilid.

PHYSIOTHERAPY, EXERCISE AND MASSAGE

Many of the weak and partly bedridden patients can be put on their feet, literally and figuratively, only with the help of an intelligent, cheerful and masterful physical therapist who will build up the strength of weakened and flabby muscles. Each day the invalid is given something to do, some-

having the work done under our supervision is that we can be watching the patient, learning more about his troubles, and seeing him on those occasions when perhaps he has something definite and telltale to show, such as a fever, a point of tenderness, or a tinge of jaundice.

EYE EXAMINATION

Nervous patients with headache must always have the eyes examined carefully by a good oculist. I ask if the glasses being worn were fitted by an oculist or by an optician, and if a mydriatic was used. Many is the time that the discovery and correction of a hypermetropia, an astigmatism, or a muscle imbalance has helped me greatly in restoring a patient to health.

THE IMPORTANCE OF TEETH

Before taking up the subject of food I think it well to emphasize the importance of teeth. Has the patient any chewing surface? There is many a person who has fifteen or twenty teeth in his mouth and perhaps a nice bridge or two but no grinding surface. No two of his molars "hit." It is fashionable nowadays to extract teeth, but unfor-

tunately it is not yet fashionable to think about putting them back. Digestion begins in the mouth and much of the food that escapes chewing can be found later in the stools, untouched by the digestive juices. Starch grains which should be digested and absorbed in the jejunum are carried down into the colon where they can probably ferment and make gas. Men and women without teeth should be urged to get plates or bridges, and until they do this their food should be chopped fine or put through a "ricer."

DIET

Often the main thing we have to do is to encourage the patient to eat. The dyspeptic patient tends to give up first one article of food and then another until few are left. When we are satisfied that the trouble is a pure neurosis it may be best not to prescribe any diet; let the patient see as clearly as possible that his help must come through rest and mental discipline and not from drugs and special foods.

Nowadays one of the simplest ways of helping dyspeptic persons is to take away their bran mush and bran muffins. The

enthusiast on bran forgets that he is prescribing the substance simply because it is one of the most indigestible to be found in nature; it was especially designed to carry seeds unchanged through the digestive tracts of the herbivores. And yet they call it a health food! Those who, except for constipation, have a perfect digestion may be greatly helped by the addition of roughage to the diet, but others who have short, inefficient and irritable bowels get into trouble; they fill with gas, they are distressed, and some go rapidly down hill. I remember one woman in particular who for ten years had kept herself in fair health only by sticking to the smoothest diet, the details of which she had worked out for herself by the method of trial and error. A physician then talked her into taking bran for her constipation and in a few weeks she had to be operated on for the relief of intestinal obstruction. A section of ileum was found twisted, bound to the stump of a partly removed uterus, greatly narrowed, and closely packed with the bran. It should be obvious that roughage cannot be prescribed for every one, and at times the factor of digestibility in a diet must come first.

When prescribing a diet for persons with a functional disturbance of digestion it seems to me that our first thought should be to give the tract a rest. We cannot give it a complete rest because that would weaken the patient; generally he has to keep at work; he often needs strengthening, and sometimes he needs fattening. Under the circumstances we must think more of what we are to give than what we are to take away. Furthermore, many dyspeptic persons are so handicapped either congenitally or by serious abdominal disease in childhood or youth that they will probably always have to be careful about what they eat. Hence it is that we must not prescribe too restricted or monotonous a diet; we must give enough food of all kinds so that if the diet proves helpful it may be followed for years.

Long ago, when I first began the study of dietetics, the subject seemed to me hopelessly complicated. I could find diets for almost every disease, but authorities did not always agree, and I could seldom learn why they approved one food and forbade another. Sometimes a patient would show me several diet slips given him by as many

physicians, and as I read the widely different instructions I wondered how he still could retain confidence in the profession. In my perplexity I began to examine hundreds of stools to see for myself what substances commonly escape digestion, and I found that many of the patients who were complaining of flatulence and abdominal discomfort were bringing stools full of coarse, undigested material, consisting mainly of cellulose. I then asked these persons either to stop eating the offending substances or else to have them puréed, and as soon as they began to bring stools which were smooth and pastelike in consistency, some of them began to report relief from flatulence and distress. Many had already discovered that they could not digest vegetables and raw fruits but thought this was due to the acids contained.

On searching through the literature, I found that the virtues of a smooth diet had been known in the past to many physicians, including the Father of Medicine. I thought at first that they were to be ascribed to the fact that cellulose is so indigestible, and its presence so likely to interfere with the action of the ferments on starches and other

foods; but later, when I learned that food goes down the bowel following a gradient of muscular irritability and rhythmicity: that in the sick this gradient is in places leveled or reversed, and that liquids will flow through reversed places while solids will not, I saw that there was still another way in which the smooth diet might be helpful. This is shown most strikingly in the experiment in which a section of bowel is cut out, reversed end for end, and the continuity of the tube restored with two anastomoses. As has been shown repeatedly, such a reversed loop will transport fluids but never solids. Evidently the original gradient of muscular force remains unchanged in the reversed segment, so it is like an uphill stretch in a pipe line that will transmit water but not stones. Animals with such reversed loops live comfortably only so long as indigestible articles can be kept from them, and when they die the necropsy always shows that a mass of straw and wood and bone has accumulated and has produced obstruction at the site of the upper anastomosis.

We can therefore say to a man with a flabby tract or a tract with irritated,

narrowed or reversed stretches that he should avoid eating cellulose-containing foods for much the same reason that he avoids putting paper, bits of wood, and cotton down a drain which has a poor drop or, somewhere in its course, an uphill stretch.

But even if we disagree as to the mechanisms involved, the fact remains that since the time of Hippocrates a smooth diet has been found to help many sufferers with indigestion. It is a good diet to prescribe while one is studying a patient and whenever there is doubt about the diagnosis. I hope the day will come when the basic or routine diet in hospitals will be a smooth one. At present a full diet with the roughest salads, fruits and vegetables is often basic, and is put on the trays until the physician orders something else. As a result I have seen the most indigestible of foods on the trays of persons just beginning to eat again after severe operations on the stomach and bowel. This sort of thing might occur less frequently if the full diet were to be supplied only on special order. Some hospitals go to the opposite extreme and supply a soft diet until something else is ordered; but that

works badly when the physician forgets, and some meek fellow with a big appetite and, let us say, a smashed foot is left for days on milk toast and gruel.

The average physician who has not had much training in dietetics is inclined too often to fall back on the use of a milk diet. I think this is unfortunate because in my experience the invalid who can digest milk will do just as well on moderate amounts of food chosen from the smooth diet list. Besides, milk does not agree well with many persons: it makes them "bilious" and constipated; it is too bulky, and it leaves a large residue in the lower small intestine.

THE SMOOTH DIET

Following is a list of instructions and foods such as I often give to patients, when recommending the smooth diet:

This diet is based not only on practical experience but on a number of scientific principles. We have no ferment in the digestive tract which will dissolve cellulose, that is, the fibrous part of vegetables and fruits. Most of this material is quite indigestible, and if we eat much of it we

throw a heavy burden on the bowel. This fiber interferes with the digestion of starches and predisposes to flatulence.

If there happen to be narrow or spasmodically contracted places in the bowel the fiber may cause clogging and back-pressure. The ideal diet in such conditions is one which leaves only a small liquid residue which can trickle past the obstructions and in this way bring relief. This diet is indicated also when the bowel is irritable, overly active and overly responsive to every stimulus.

It should be tried out faithfully at first, and then if it works well other foods may be experimented with, one at a time. If you have learned by experience that some of the foods allowed on this list are hurtful to you, leave them alone.

If you are to give this diet a fair trial, eat no coarse foods with fiber, skins, seeds, or gristle. Avoid salads with celery, cucumbers, and pineapple, also many of the green vegetables, raisins, berries, jams full of seeds, nuts, and many of the raw fruits. Beans, cabbage, onions, peppers, melons, cucumbers, and peanuts are notoriously gassy.

If you are living in a boarding house you can follow this diet by avoiding forbidden foods and eating more of the digestible ones which are put before you.

Avoid sugar in concentrated form and take no candy or other foods between meals. Hot cakes and waffles might not be bad if they were well chewed and not eaten with so much syrup. Fried foods are not bad if they are properly fried, that is, totally immersed in fat at the right temperature.

Avoid eating when in a rush, when very tired, or when mentally upset. Family rows should be held away from the table. Chewing gum may cause distress because air is swallowed with the saliva. Digestion is greatly helped by a good chewing surface. If there are gaps in your teeth have your dentist fill them with bridges. The taking of purgatives should be avoided as they sometimes cause flatulence and abdominal distress.

For Breakfast. You may have orange juice or grape fruit (avoid the fiber in the compartments). Cantaloupe and other melons are inadvisable. Coffee, if desired,

is allowed in moderation; it sometimes causes flatulence. If you are sensitive to caffein try "Kaffee hag" or postum. You may have chocolate, cocoa or tea, one or two eggs with bacon or ham, white bread, toast or zwieback with butter, any smooth mush such as farina, cream-of-wheat, corn meal, or rolled oats, also puffed cereals or cornflakes. Shredded wheat biscuits and other coarse breakfast foods are not allowed. Bran must not be used in any form. Graham bread is permitted but not the coarser whole wheat bread.

For Lunch and Dinner. In fruit cocktails avoid the pieces of orange and pineapple. Broths, bouillon, cream soups, and chowder are allowed, also meat, fish, chicken, eggs, and oysters. Eat no smoked fish or pork. Eat crab and lobster only if you know that they agree with you.

Bread and butter are allowed, also hot biscuits if they are made small so as to consist mainly of crust. You may have potatoes (baked, mashed, hashed-brown, or French fried), rice, sweet potatoes,

hominy, tomatoes (stewed, strained and thickened with cracker or bread crumbs), asparagus tips, beets, turnips, creamed spinach, Italian pastes such as noodles, macaroni, and spaghetti (cooked soft), and purees of peas, beans, lentils, lima beans or artichoke hearts. Sweet corn may be used only if passed through a colander. There are practically no other vegetables that can be pureed to advantage. Very tender and digestible string beans can now be secured in cans. They are fine for salads.

No salad should be taken at first. Later you may try a little tender lettuce with tomato jelly, hard boiled egg, tomato, string beans, pears, or chopped apple. Mayonnaise and French dressing are allowed. Potato salad without onions is permitted.

For Dessert. Take simple puddings, custards, ice cream, jello, plain cake, and canned or stewed fruits, particularly pears and peaches. Cottage cheese is permissible; other cheeses often cause trouble. The filling of apple, peach, apricot, custard, or lemon cream pie may be eaten.

In case of constipation, stewed fruit may be taken once or twice a day. In winter the dried pared fruit may be used for stewing. Prunes are probably the most laxative of fruits and if eaten every other morning they will relieve many cases of constipation. They should be cooked slowly until they almost go to pieces. Apple sauce is much more palatable if made from unpared and uncored apples. The sauce is strained later. It is more palatable also if mixed with a little tapioca or sago. Apples may also be eaten baked. Blackberries and loganberries can be stewed and strained and the sweetened juice thickened with cornstarch. This makes a delicious dish with the full flavor of the berries. Later you may try fully ripe pears and peaches. Bananas are digestible when cooked or when fully ripe.

Make no effort to drink water. Be guided by your thirst. Avoid excessive use of salt, pepper, or other seasoning. If you wish to gain in weight eat as much cream, butter, fat and starch as you can. If you wish to lose weight or to stay thin, live largely on the vegetables, fruits, and

salads, with a moderate amount of lean meat each day.

Purées of many vegetables can now be obtained in cans from a number of manufacturers.

As will be seen, the essential point is that the patient does not eat coarse foods, with fiber, skins, seeds or gristle. He must not eat certain salads, celery, tomatoes, cucumbers or pineapple, and must avoid many of the green vegetables and raw fruits, and such things as raisins, nuts and jams full of seeds. It is also wise to cut down on the amount of sugar, and to interdict all sweets between meals. The diet should be tried faithfully for a time and if it works well it can be adhered to; if it does not give relief within a few weeks, the trouble is probably not one that is going to be relieved by any form of dietetic restriction.

If the patient is underweight, it may be helpful to add plenty of cream and butter to the diet. If constipation is present, it is essential that it be regulated with the help of the mildest measures, such as enemas of physiologic sodium chloride solution or small doses of magnesium oxide. Until this is done one cannot tell how much of the

distress complained of is due to constipation or to the abuse of purgatives. The most tasty and perhaps the best bulk producer for the constipated person is the prune. In my experience a few sufferers from constipation can be completely cured by a good proctologist who will heal fissures and infected crypts and will remove irritable hemorrhoids.

In order that I be not accused of being a crank with one idea, I want to say here that I am well acquainted with the virtues of a rough diet, and I often prescribe it for the constipated and the obese patient. Some day I may write an article on the use of roughage in the diseases in which it is helpful, but just at present I happen to be discussing the cure of those with weak and defective digestion.

DRUGS

The use of hypnotics and sedatives has already been discussed. Most of those patients who are greatly helped by alkalis such as sodium bicarbonate or magnesium oxide will, I think, be found to be suffering from ulcer or some other organic disease. There is much need for drugs which will

help flatulence. I commonly prescribe peppermint but I fear that often it does not help much. A pleasant way to prescribe it is to have the patient buy a bottle of the non-alcoholic *Crème de menthe* which is obtainable in grocery stores and add to it 4 ounces of essence of peppermint to make it stronger. The dose is 1 or 2 tablespoonfuls. The good old paregoric of our grandmothers when taken in teaspoonful doses is still an excellent remedy for distressing flatulence. A number of the carminative tablets on the market contain charcoal but I doubt if this is of any value because, so far as I can learn, when wet it does not absorb gas. Sodium bicarbonate gives some patients relief because it helps them to belch and perhaps because it changes an abnormal and uncomfortable type of gastric peristalsis into a more normal and more comfortable type.

When gas is trapped under the diaphragm in the splenic flexure the patient can sometimes obtain instant relief by getting into the knee-shoulder position or by hanging over the side of the bed so that the anus is higher than the diaphragm. Unless the bowel is too firmly contracted the gas will

then move up into the rectum from whence it can be expelled. Roentgen-ray studies show that when an excess of gas is present in the abdomen it is usually in the colon, from whence it can often be dislodged with the help of an enema of warm physiologic saline solution.

I have little faith in tonics and bitters and I seldom prescribe them unless I see that the patient is otherwise going to feel neglected. I think their value is largely psychic, and for this reason when I do prescribe one I like it to have an impressive name like "beef, iron, and wine." Under the influence of these magic words the patient surely ought to feel better. Intramuscular injections of cacodylates may do some good directly, but I think often their main use is to bring the patient back at frequent intervals for observation and encouragement.

Many physicians give strychnine to nervous patients but from what I can learn of its pharmacologic action it seems to me that it should be the last drug on earth to give to these persons. They are already on edge, with reflexes exaggerated, senses overly acute, and the doorways to brain

and cord open to every incoming stimulus. What is wanted is some derivative of bromine or barbituric acid which will somewhat close the doors, raise the threshold and quiet the reflexes, and not a drug like strychnine, which is preeminently a connector of nervous pathways. The dog that has been poisoned with strychnine has his nervous system so sensitized that even a sudden sound or a breath of cool air on his ear will suffice to throw him into a convulsion.

Most physicians today are inclined to prescribe sodium or potassium bromide to quiet the nerves of sensitive patients and these drugs of course often do work well. I prefer the newer compound, Bromural, because it is easy and pleasant to take, because I have yet to see it produce pimples, and because its action appears to be more lasting than that of the old bromides. Bromural comes in 5 grain tablets. The nervous woman can take one or two of them whenever she feels jumpy or on edge, when she is menstruating, when she is distressed or wakeful, or when she is faced with some trying interview with dentist or physician or attorney.

I doubt whether there are many gastroenterologists today who use pepsin or pancreatin unless it is in cases of definite gastric or pancreatic achylia. As Fermi showed years ago, they have no influence on gastric digestion unless given in enormous amounts. Carlson and his associates were unable also to demonstrate any increase in the efficiency of digestion when healthy students took considerable quantities of the various bitters. Bismuth is another drug which the gastroenterologist seldom uses now except in cases of diarrhea, and then he gives it in tablespoonful doses. Belladonna in physiologic doses is so annoying to many patients that I rarely use it. It sometimes has a good effect on constipation but I believe that in most cases it is useless.

The drug that we really need most in gastroenterologic practice today is one that will restore the downward current in the digestive tract and will put a stop to nausea, belching and acid regurgitation. Unfortunately, we have many drugs that will reverse the current, but with the possible exception of calomel, I do not know of any that can be counted on to restore its downward trend. Minor degrees of nausea can

sometimes be relieved by lowering the irritability of the vomiting center with small doses of Adalin or Bromural.

SOME POINTS IN THE TREATMENT OF CONSTIPATION

One of the first things that has to be done with many patients who complain of vague indigestion is to stop every form of treatment that they are taking for constipation. There are many persons so insensitive that they can be comfortable in spite of taking a purgative every day, but there are others who suffer with peristaltic unrest and flatulence as soon as they take even small doses of a mild laxative. So long, then, as a patient is taking laxatives, hydrocarbon oil, or bran, no one can tell how much of his indigestion is due to disease and how much to the disturbing or irritating substances which he is pouring into his stomach.

As I have said elsewhere in this book, not infrequently all one has to do to cure mild forms of indigestion is to forbid the use of laxatives and a rough diet, meanwhile relieving constipation with harmless enemas of physiologic salt solution. In other cases

I have obtained good results by showing the patient that there is no need for taking a laxative every day. Unfortunately most men and women and many physicians have been taught that it is essential that everyone have at least one bowel movement a day. This may be true for some persons but I have met scores of women and some men who were perfectly healthy and comfortable with a movement once every three, four, five, or six days.

Some have probably been born with a colon so large and roomy that it takes days to fill up and overflow; others eat so little or eat such concentrated food that it takes them a long time to accumulate enough refuse to form a stool, and others perhaps have such an efficient bowel that it absorbs almost everything and leaves little to be voided. It seems to me that such men and women should not attempt to have a movement every day; nature did not intend that they should, and the physician must refrain from meddling.

Several years ago Freedlander and I showed in scores of normal students that ordinarily food residues take several days to pass through the body. Although recent

work by Hoelzel indicates that the small glass beads which Freedlander and I used as indicators probably lagged somewhat behind the residues from the food, I think it is still safe to state that in most persons the feces voided on one day are made up of residues from meals eaten on at least three preceding days. Mixing of residues from different meals takes place in the first third of the colon where the feces are soft. Beyond the hepatic flexure they harden and they then go through the bowel much like cars on a track. I sometimes liken the colon to a short railroad siding with three freight cars on it. Every day a new car comes down and bumps one off on the other end so that three always remain. Imagine now a car coming down so fast that it bumps all the cars off and leaves the siding empty. The result would be that for the next three days the track would be filling, and no car would be bumped off the end. Actually, when a laxative was given to some of the students, or a spontaneous attack of diarrhea occurred, practically all of the tiny beads used as markers were rushed out, and after that, for two or three days, the bowels did not move.

The important practical point is that when the physician has purged a patient he must not expect more bowel movements for two or three days; he must not be concerned when they do not appear, and he must not resort to further purgation until it is obvious that the colon is not going to take up its work again.

I suspect that it is the *daily* use of laxatives that has much to do with the wearing out of their effect, and for years I have been teaching patients that if they must take these drugs they should take them only two or three times a week. There is no question that if some of the persons who now think they are constipated would only wait for a few days their bowels would move spontaneously. In many cases Christian Science is the best possible treatment for constipation; in other words, the patient should stop the use of medicine, stop worrying and wait hopefully. Unfortunately, in this busy nervous world some persons cannot wait because they soon feel dopey, stupid, and poisoned. Others who, when constipated, practically never experience this distress, would gladly leave the bowel alone and wait for nature if it were not for

the fact that they have been warned so often against the dangers of intestinal auto-intoxication.

I remember a fine looking, healthy gymnasium instructress who once consulted me because her bowels moved once a week. She was sure that this peculiarity did not inconvenience or distress her in any way and all my examinations bore out her statement that she was perfectly well. Finally I said to her, "What are you doing in a doctor's office? You do not belong here." Her answer was that she knew this and didn't want to come but her mother and sisters and family physician kept bothering her and threatening her with disaster if she didn't do something to correct the so-called constipation. After thinking a moment I sat down and wrote for her the following certificate:

"To whom it may concern: Miss —— is to be allowed to leave her bowels alone as long as she pleases."

This gave her great delight and she went off happy saying that she would have the document framed and hung in her room.

The idea of intestinal auto-intoxication is one of the oldest in medicine, and one

that has always had a strong hold on the minds of both physicians and laymen because it seems so rational and so obviously true. Many physicians believe that a number of diseases such as high blood pressure, rheumatism, epilepsy, insanity, and Bright's disease are due to intestinal poisoning, and thousands more use this diagnosis largely as a cloak for ignorance. The patient gladly falls in with the idea because in every newspaper and magazine he reads of the terrible results which will follow if he doesn't take some one's "internal baths," or if he fails to buy so and so's laxative pills, or patented syringe, or paraffin oil, yeast, sour milk, agar, or bran.

I must at this point emphasize the fact that I do not deny the possibility that such a thing as intestinal auto-intoxication may exist. Sometimes there must be opportunities for such poisoning. Highly toxic substances formed outside the body can certainly go through the wall of the digestive tract and can injure us. Children seem often to be severely poisoned and even killed by substances formed in the bowel but at these times they suffer with diarrhea, and much evidence has accumulated to show that they

are poisoned and killed not so much by chemical toxins as by living bacteria which go through the intestinal wall and into the blood stream.

Somewhat similar but milder infections arising in the digestive tract doubtless occur in adults, and they may account for certain types of illness. As one would expect, bacteria are most likely to get through the intestinal mucosa when it is irritated or injured by purgation. In fact, any type of intestinal auto-intoxication is most likely to occur after purgation or in the presence of diarrhea because at this time the contents of the bowel are liquid and the number of living and virulent bacteria is enormously increased.

In the presence of constipation, the feces are so solid and dry and lacking in nutriment that most of the bacteria die. Furthermore, it is obvious that little absorption can be expected from solid masses of fecal material as compared with what might take place from liquids which can come into more intimate contact with the mucous membrane. For this reason many students of the subject have come to the conclusion that the individual is safest from auto-intoxication when constipated.

The main thing that saves humanity from such troubles is the fact that few poisons can pass unchanged from the intestine into the blood; most of them are stopped or chemically altered in the wall of the bowel, and those that get through are wholly or partly destroyed in the liver and the lung. Whatever gets past these organs generally trickles into the circulation so slowly and in such small dosage that it has little if any physiologic effect. For these reasons it is possible for a man to drink with impunity such substances as rattlesnake venom and tetanus toxin, poisons which would kill quickly if injected into a vein.

Before anything definite can be known about auto-intoxication research workers must find some substance which is formed in the bowel, which can get unchanged through the mucous membrane, the liver and the lungs; which can be absorbed in amounts sufficient to produce symptoms, and which will produce the symptoms ordinarily ascribed to auto-intoxication. Actually although much research has been done no such substance has yet been found and as yet there is little evidence to show that constipation ever produces diseases

like high blood pressure, arthritis, or rheumatism.

There is no question that many persons feel poisoned and miserable when they are constipated, but the important point is that the symptoms almost always clear up instantly after a bowel movement. *When such prompt relief is experienced*, the sufferer can be sure that there has been no chemical poisoning because in that case relief would come slowly and only after most of the poison had been destroyed or excreted in the urine. As I often remind patients, one does not immediately sober a drunken man by taking away his flask of whiskey.

But the symptoms are real, and if they are not due to chemical poisoning what are they due to? I feel sure that *in those particular cases in which the patient gets relief immediately after a bowel movement* the distress must be produced mechanically by distention of the rectum and by pressure on sensitive nerve endings. In confirmation of this is the fact that some observers have produced typical symptoms by distending the rectum with cotton or with air. Against my theory is the fact that when Ivy dilated the rectums of students with balloons

he did not produce the usual symptoms of "auto-intoxication." The difficulty, I believe, is that there is another factor necessary: a factor of personal idiosyncrasy. Anyone who daily makes rectal or pelvic examinations or who sees roentgenographs made a day or two after the taking of a barium meal knows that the rectum is commonly full of fecal matter and that the patient is rarely conscious of the fact. Actual tests on some of these persons have shown that the rectum is comparatively insensitive. In other persons it is abnormally sensitive and in them the feelings of auto-intoxication are often produced. I have noticed also that in the same person distention of the rectum with feces will sometimes give rise to dizziness, dopiness, and headache, when ordinarily it produces, at most, an uncomfortable feeling in the pelvis.

The essential point about all this is that before the physician can induce some patients to leave the bowel alone he must first drive out fear, and the only way in which to drive out the fear of auto-intoxication is to give a little lecture along the lines indicated in the preceding paragraphs.

Some persons, then, may be reassured and left alone to do what nature intended they should do; others are doubtless constipated solely because they have to live the strenuous life of modern civilization. As soon as they go on a vacation they are well. Others need to be taught more regular habits; that is, they must go to the toilet even if they do not feel any inclination to do so. Others must eat more fruit and vegetables, and must perhaps take agar to add to the bulk of the stool. Those with a good digestion can resort to the use of bran, whole wheat, figs, and various brands of "saw dust."

Many persons who must have some sort of extra stimulus for the bowel will do better to take a little magnesium oxide or some cascara every two or three days than to take a rough diet. I am afraid of hydrocarbon oil, especially when it is used for long periods of time. It seems to me that it must interfere with digestion because it coats the particles of food with an indigestible film. Physicians daily warn patients against coating their food with digestible fats such as butter and lard and then they prescribe unthinkingly an indi-

gestible fat which, theoretically, should do even greater harm. Actually in many cases the use of such oil must, after a time, be discontinued because it begins to come through unmixed with the feces. There are a few persons who get a satisfactory evacuation every morning if, while dressing, they drink several glasses of water with a pinch of salt in each one. The taking of more exercise will sometimes help constipation but it is not a sure cure, and I have known many laborers and professional athletes who were constipated.

As I have pointed out elsewhere in this book, an enema of physiological salt solution (a rounded tablespoonful of table salt to 2 quarts of warm water) is often the best means of emptying the colon of stagnating contents, and so far as I can learn or imagine, even the daily use of such an injection will not do harm. The patient should inject the solution while seated on the toilet bowl, and an ordinary short hard rubber tip should be used. The only difference between a "high enema" and a "low enema" is that in the so-called high enema, a foot of rubber tubing which the patient fondly thinks has passed up into the bowel

is coiled uselessly in the rectum. As every roentgenologist knows, if enough of the solution is run in it will always go back as far as the cecum and often even into the small bowel.

Unfortunately there are some persons who do not lose their feelings of dizziness and auto-intoxication even when the colon is cleared out with an enema and they must resort to the use of some laxative. One of the best and mildest appears to be magnesium which can be taken in the form either of the oxide, or the "milk" or the citrate. It is possible sometimes that enough of the drug is absorbed to have a soothing effect on the nervous system, and it may also serve to steepen the gradient of forces down the bowel.

CHAPTER VI

SOME PRACTICAL POINTS ABOUT THE PHYSIOLOGY AND INNERVA- TION OF THE DIGESTIVE TRACT

Investigators themselves who pass their whole time in the laboratory, and have no regular intercourse with the outside world, cannot influence public opinion on the question of experiments and experimenters. It is your duty, gentlemen—I appeal to the medical men in my audience—to assist us here. You move about every day amongst the people, and come into contact with the highest and lowest in the land. You are linked with them by the most intimate ties. You actively share in their greatest joys, and their keenest sorrows. When you speak in defence of a science which devotes itself to the life and health of mankind, your words will be listened to. It lies, therefore, with you to teach the public that experiments upon animals are unavoidably necessary for the advancement of medicine, and of the greatest conceivable advantage to it. You must make it understood that the greater the precision attained by experiments upon animals, the more certainly will patients be cured, and the less frequently will they have to submit to a trial of remedies, with possibly serious consequences.—I. P. Pavlov.

CHAPTER VI

SOME PRACTICAL POINTS ABOUT THE PHYSIOLOGY AND INNERVATION OF THE DIGESTIVE TRACT

THE following brief account of the activities of the digestive tract has been inserted here for the benefit of those readers who, having left college a good many years ago, now find, perhaps, that references to gradients and splanchnics and vagi are a bit confusing. I realize that in writing this chapter I must bore some readers by putting in much that is elementary, and must dissatisfy others by leaving out much that is important, but I am in somewhat the position of those writers of books on etiquette who do not know whether to begin with warnings against the use of the fork as a toothpick or with instructions in the fine points of eating cherries.

Those readers who wish to go more deeply into the subject of the physiology of the digestive tract must turn to such books as Pavlov's "The Work of the Digestive Glands," Babkin's "Die äussere Sekretion

der Verdauungsdrüsen," Taylor's "Digestion and Metabolism," Cannon's "The Mechanical Factors of Digestion," and Alvarez' "The Mechanics of the Digestive Tract." Good accounts of the nerves to stomach and intestine will be found in Gaskell's "Involuntary Nervous System," Kuntz' "Autonomic Nervous System," and Van Campenhout's article in a recent number of *The Quarterly Review of Biology*.

As everyone knows, food is thrown forcibly from the mouth through the pharynx and into the esophagus. Liquids are carried through this tube by the force of gravity while solids are pushed by peristaltic waves through the cardia and into the stomach. Normally the cardia should relax somewhat as food reaches the stomach. In rare cases it does not; the sufferer then has difficulty in swallowing, and the sphincter at the cardia has to be stretched by a special instrument.

THE STOMACH

The upper part of the stomach is a thin-walled sack in which the food lies quietly much as it does in the crop of a bird. There is almost no peristaltic movement in this

region, and the food drops very slowly and largely by force of gravity into the muscular mill in the lower third of the stomach. The gastric juice, which is secreted in the upper two-thirds of the stomach, flows down into the lower part and is here mixed with the food. The gastric juice is made to flow first by stimuli coming along the vagus nerves from the brain, and later by stimuli arising from the presence of food in stomach and bowel.

Contrary to popular belief there is practically no absorption of either food or water from the stomach. The stomach begins the process of digestion, but it is the small bowel that does most of the work. A man can get along without a stomach but he cannot live without at least a third of the small intestine.

So long as the stomach contains material, waves keep traveling over the pars pylorica (lower third of the stomach) kneading the food and the gastric juice, and mixing them together. Occasionally, and especially when the stomach is too full, or when the person is nervous, or when there is disease somewhere along the digestive tract, waves or shallow ripples will run backward over the

stomach. Such waves, I believe, produce belching and many forms of distress such as heartburn, a feeling of discomfort in the lower part of the thorax, water brash, and regurgitation. Observations on animals have shown that there are many ways in which waves can travel over the stomach, and I believe some of the more unusual forms of activity cause discomfort just as similar abnormalities in conduction in the heart give rise to distressing sensations.

When liquids enter the stomach they tend to run rapidly through the pylorus and on down the bowel. Since one of the functions of the stomach is to warm the food and to remove from it all those properties which might cause it to be irritating to the highly sensitive bowel, it sometimes happens that a glass of cold milk which has been hastily gulped will run on into the bowel and will there cause colicky sensations and distress. This type of disturbance is met with also in patients who have submitted to the operation of gastroenterostomy, and roentgenologic study will then show that food is pouring out too rapidly through the new opening. In all such cases in which the stomach empties too rapidly it is helpful

to have the patient begin the meal with some solid food like toast. A little of this, passing on into the bowel, will cause it to become active, and this activity will serve to keep more food from coming down. The bowel seems somehow to telegraph back to the stomach that it is busy, and that for a while it doesn't want any more work to be thrust upon it. This mechanism probably helps also in regulating the activity of the normal pylorus.

The factor of fluidity appears to be the most important one governing the rate of departure of foods from the stomach. As fast as foods are liquified they tend to move on through the pylorus and into the bowel. Those that stay solid or lumpy remain in the stomach for several hours. Fats and fruits and other foods which some persons keep tasting for hours after a meal may perhaps for a long time escape digestion because they remain floating on top of the semi-liquid material in the stomach.

As everyone knows, digestion in the stomach is dependent on the presence in the gastric juice of the ferment pepsin and its activator, hydrochloric acid. The fathers of gastroenterology naturally expected to

find that much indigestion is due to a decrease in the ability of the stomach to secrete either one or both of these substances, but actually, the analysis of gastric contents has proved to be of little value in the study of "functional dyspepsia." Daily one finds that those persons who are complaining most have normal concentrations of acid, while some of the apparently normal students who volunteer to have their stomachs tubed are found to have no acid at all. Furthermore, even when symptoms of indigestion are associated with low concentrations of acid in the gastric juice, the giving of acid to the patient rarely seems to do any good. The one symptom which the drug does sometimes relieve spectacularly is the looseness of the bowels which, in some cases of achlorhydria, wakens the patient about six in the morning.

Partly because poor methods of measuring peptic activity have been used, and partly because most investigators have been interested only in gastric acidity, little is known about the ways in which the secretion of pepsin varies in health and disease. The impression of most writers on the subject appears to be that in most cases pepsin

is present in such amounts that little can be hoped for from giving more.

DUODENUM, JEJUNUM, AND ILEUM

As food leaves the stomach it enters the duodenum, a part of the bowel especially named by the ancients because it is about 12 inches long. There the products of gastric digestion are mixed with bile and with the powerful digestive juices from the pancreas. The duodenum in its first 2 inches is thin-walled and poorly muscled, and perhaps for this reason food tends to stagnate in it. Because, when filled with barium, the shadow of this region in roentgen-ray films resembles a bishop's triangular miter, it is called the "cap." The particular importance of this small area in medical diagnosis is due to the fact that it is so often the site of ulceration.

The next two-fifths of the small bowel is called the jejunum from a Greek word meaning empty. It is so irritable that it quickly pushes the food on into the ileum (the "crooked bowel)," and as a result it is always poorly outlined in roentgenographs made after the taking of a barium meal.

There is a ferment, erepsin, in the intestinal juice which helps in the final splitting of the protein molecule. It is possible that some disturbances of digestion are due to a failure of the intestinal glands to secrete this and other substances helpful in the process of digestion, but unfortunately nothing is known about the subject.

For a long time it was thought that the mucous membrane of the bowel would never let undigested protein pass into the blood stream but it is now known that such material often does get through. Moreover, by getting into the lacteals it goes directly into the blood and thus escapes the detoxifying action of the liver. It is possible that this leakage accounts for more disease than we now ascribe to it. The whole field of intestinal absorption, important as it is, is so far almost unexplored.

THE LENGTH OF THE BOWEL IN RELATION TO THE TYPE OF FOOD EATEN

Textbooks state that the small bowel is about 22 feet long but this measurement represents the condition in the cadaver after the intestinal muscle has lost its tone and has become stretched. Actually, recent

measurements made on living subjects, with a thread running from mouth to anus, show that the small intestine is only from 6 to 10 feet long, and I strongly suspect that one of the reasons why some thin frail persons cannot digest much roughage is that they have an unusually short, carnivorous type of bowel.

In the animal kingdom the complexity and length of the digestive tract appears to depend largely on the amount of grass, leaves, and seeds eaten. A goat can eat the paper off a tin can and digest it because it has a bowel thirty times its body length, a big complicated stomach, and a big cecum in which it can keep the food for ten days or more. The giraffe, which lives on the tough branches of trees, has an intestine a hundred times its body length, while a dog or cat which lives on easily digested meat has a bowel only three or four times its body length. Apparently, then, man with his very short and very simple digestive tract was intended to be carnivorous, and actually, delvers in the caves of Europe know that he was a hunter and a fisherman and a herdsman for untold thousands of years before he learned to live on the products of the soil.

I often tell patients that if the Designer of the Universe had intended them to eat rabbit food He would probably have given them a rabbit's bowel or at least the type of abdomen that one sees on orang outans or on famine orphans in India or China. Actually the full cecum of a rabbit or the full stomach of a cercopithecus monkey, which lives on bamboo shoots, makes up about a third of the weight of the animal.

WHY FOOD GOES DOWN THE BOWEL

There are two main types of activity in the small bowel: the rhythmic segmenting or swaying movements which churn the intestinal contents and rub them over the absorbing surface of the mucous membrane, and the traveling waves which from time to time rush down the bowel. According to my theory, these waves tend always to travel downward (aborally) because the upper part of the bowel is more active, more irritable, and more responsive to the stimulus of material in its lumen than is the lower part. Since the activity and irritability decrease gradually from the upper end of the bowel to the lower, I say that the food follows a gradient of muscular force

similar to the gradient in the force of gravity which keeps water running downhill in pipeline or stream.

The gradient of forces in the bowel could conceivably be reversed if one were to irritate the lower end of the bowel until it became as active and powerful as the upper end usually is. Such reversal has been produced experimentally by injecting irritant substances into the muscle about the ileocecal sphincter, and as was to be expected, in animals so treated the small bowel often showed an inability to pass onward its contents. The gradient of forces might be reversed also by the action of any poison which would tend to injure the highly sensitive upper end of the bowel more than the less sensitive lower end. It is possible that a number of nauseating and emetic drugs act in this way, and I think it probable also that this is one of the ways in which the toxins of infectious diseases and perhaps of fatigue are able to upset digestion.

A person who is coming down with a cold or with tuberculosis loses appetite, and a dog with distemper refuses to eat. Cannon showed years ago that if such a dog is forcibly fed the food will not leave the

stomach although there is no obstruction in the way, and I showed later that the gradient in the small intestine is reversed. Hysterical women and frail sickly girls often seem to me to have such a poor gradient of forces in the bowel that it is hard for them to get any food through in the normal direction and easy to pass it back in the wrong direction. I have shown also that waves sometimes run backward in the small intestine shortly before vomiting occurs.

I can conceive of three ways in which a flattened gradient of irritability could be made steep again: the irritability of the tissues at the upper end of the tube might be raised; the irritability of the tissues at the lower end might be lowered or the two changes might be effected at the same time. Unfortunately I know of no drug that can be counted on to do this, and the outdoor life on a Western ranch which probably would cause the gradient of many weak, flabby, dyspeptic girls to steepen is generally not obtainable for them.

When a patient is vomiting it helps sometimes to put solid food into the stomach because this raises the tone of the upper end of the tract, and it helps sometimes to give

laxative drugs. As might be expected from the gradient theory, the injection of irritant substances into the rectum tends to reverse the gradient and to cause nausea and vomiting. Many sensitive persons are nauseated by enemas, and nausea appears to be one of the symptoms produced by a flattening or reversal of the gradient. Recent studies have shown, as was to be expected, that the gradient is reversed in some pregnant animals. I suspect that in some cases a reversal of the gradient can be produced by nervous stimuli which either depress the upper end of the digestive tract more than the lower, or else stimulate the lower end more than the upper.

THE COLON

The small intestine empties its contents through the ileocecal sphincter into the cecum or first portion of the colon. The muscle around this opening serves not only to keep material from regurgitating from the colon into the small bowel but to keep the contents of the small bowel from emptying too rapidly into the colon. The main function of the colon appears to be the returning of water to the body: it is like

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the condenser on a steam engine. Fortunately for mankind the mucous membrane of this part of the bowel is so designed that it allows very little besides water to pass through into the blood. For this reason it is useless to try to feed patients by rectum. The only hope is that a little of the material used as an enema will regurgitate through the ileocecal sphincter into the ileum where it can be absorbed.

The colon is normally a sluggish, rather insensitive organ which in man shows very little peristaltic activity. Only occasionally is there any sign of a traveling wave. At such times, usually after a meal, the fecal material runs together into a sausage-like mass which is pushed slowly but steadily into the rectum. It is this so-called mass movement which often gives rise to the call to defecation. If the call is ignored the material in the rectum will sometimes be moved back again into the middle region of the colon.

The appendix is lined by a lymphoid type of tissue similar to that which is found in the tonsil. Because some of the animals which do not possess an appendix have many large lymph nodes in the mesentery

about the junction of ileum and colon, it seems probable that these nodes take the place of an appendix in protecting the body from invasion by the large numbers of bacteria which are present in the semi-liquid contents of this part of the bowel. It is only in the lower end of the ileum and in the cecum that bacteria find conditions suitable for heavy growth; in the upper part of the small bowel the residues from the food have been more or less sterilized by the acid of the gastric juice, and in the lower part of the colon the feces are so dry that most of the bacteria are dead.

THE BILIARY TRACT AND THE GALLBLADDER

The bile appears to be largely an excretion made up of pigments formed during the destruction of worn-out red blood cells. In addition to these pigments the bile contains certain salts and cholesterin which help in the emulsification and digestion of fats.

Recent studies have shown that when the pressure in the bile ducts rises above a certain level bile enters the gallbladder; there water is removed from it and its solid constituents are greatly concentrated. Later, when food is taken, and particularly food

rich in fat, the gallbladder contracts slowly and forces the bile into the bowel. When the gallbladder is removed the ducts generally become much dilated and the bile tends to dribble more or less constantly into the bowel.

The gallbladder shares with the liver the power of rapidly removing and excreting into the bile bacteria that have gained entrance to the blood. Sometimes, unfortunately, while doing this work it becomes injured; the bacteria are so numerous or so virulent that they are able to get a foothold in the wall of the organ, and chronic or recurrent cholecystitis is the result.

NERVES TO THE DIGESTIVE TRACT

One of the first things to remember about the digestive tract is that it is highly autonomous; that is, it contains within itself all the mechanisms necessary to carry on digestion and to maintain life. If in animals one cuts the two vagus nerves coming from the brain, and the splanchnic nerves coming from the dorsal region of the spinal cord, some individuals will die of diarrhea and inanition but others will recover from the

operation and will live on, apparently in good health. Obviously, then, the digestive tract is somewhat like a factory which can go on with its work after all the wires between it and the manager's office have been cut.

Many physicians have the idea that the nerves to the intestine supply power as well as every detail of direction and control, but this is not so. My impression is that the nerves are more like telephone wires than power lines. To continue with my simile, the factory must keep in communication with the office so as to order materials, to report breakdowns, and to complain when it is swamped with work, while the office must constantly be regulating the output of the factory to the needs of the market and to other conditions in the outside world.

Just as a breakdown in the interdepartmental telephone system which correlates the activities of the many divisions of a huge modern factory would immediately lead to serious difficulties in production, so I suspect that injury to the nerves in the wall of the bowel and in its mesentery would do more harm than would injury to the extrinsic nerves that run to the brain

and the spinal cord. Destruction of some of the local nerves might lead to the production of conflicts between the activities of different parts of the bowel, with resultant colic; it might cause some of the peculiar failures in conduction along the bowel which surgeons refer to under the term dynamic ileus, and it might lead to the production of the huge dilated colon seen in cases of Hirschsprung's disease. Unfortunately this subject of conduction in the bowel is as yet almost entirely unexplored.

THE VAGUS NERVES. The principal nerves to the digestive tract are the two vagi, so called because they *wander* far from the brain, down through the thorax, and on to the wall of the stomach. At the upper end of the stomach they divide into many branches, some of which run to the liver, others to the stomach, others to the big ganglia which are situated in front of the spine, and others to the upper portion of the jejunum. According to some investigators the vagus supplies the bowel only as far down as the ileocecal sphincter but so far as I can learn too little work has been done to settle the question. Kuntz makes the definite statement that in man vagus

fibers reach the descending colon. Below this the corresponding "parasympathetic," type of innervation comes from the pelvic nerves.

It is stated in textbooks that stimulation of the vagi produces contraction of the stomach and bowel but this is only partly true because the effects obtained vary from moment to moment and are different with different types of stimuli. My experiments with cutting the vagus nerves in animals have convinced me that one of their main functions is to keep the bowel from reacting too strongly to every stimulus. When this brake-like effect is removed the bowel becomes too active and the animal will sometimes die of diarrhea. It has been shown many times that the vagus nerves have much to do also with the complicated mechanism of vomiting. They do not appear to carry many sensory fibers, but it is probable that they carry some. There are many persons who experience a sharp pain in the forehead when they drink ice water and this is supposed to be due to a spread of some stimulus up the vagi to the brain and out along the upper branch of the fifth nerve. Occasionally, also, pain in the

stomach will be associated with pain around the ear where the skin is supplied with twigs from the vagus nerve.

The point which must not be forgotten by physicians is that stimulation of the extrinsic nerves of the bowel does not produce contraction of the intestinal muscle quickly and positively the way stimulation of, let us say, the sciatic nerve causes contraction in the muscles of the leg. The effect of stimulation of any of the involuntary nerves is transient and uncertain and not easily reproduced because there exist between the nerve and the muscle one or more relays of nerve cells which may or may not conduct, or which if they do conduct will now stimulate and again inhibit. Much depends often on the state of the muscle when the stimulus arrives; if the muscle happens to be contracting it will tend to relax and if it is relaxed it will tend to contract.

As if this were not puzzling enough, the effects of stimulation of the autonomic nerves are further complicated by the fact that in the same little bundle which is looked upon as "a nerve" there are many fibers of different types and with different

functions. Some are "preganglionic" (first relay) fibers which are inclined to stimulate the intestinal muscle; others are "postganglionic" (second relay) fibers which tend to inhibit the muscle; others regulate the size of blood vessels, others control glands, and others are true sensory fibers which belong to the central nervous system and run directly to the ganglia on the posterior roots of the spinal cord.

As is well known, the bowel has a double nerve supply; one set of fibers coming directly from the brain by way of the vagi or the pelvic nerves and the other from the sympathetic ganglia which are connected with the central region of the spinal cord. Many theories have been spun about the diseases which can be produced by vagotonia or sympathicotonia; that is, by an unbalance between the controlling powers of the two sets of nerves; these theories have had a wide vogue but they presuppose so much that is contrary to the facts as physiologists now know them, that they have never had any attraction for me. During the last few years Cannon has removed the entire sympathetic chain of nerves from many cats and has not seen any sign of the

marked preponderance of vagus effects which would have had to be present if the theories of vagal and sympathetic balance were correct.

I would like also to warn the practitioner of medicine, and for that matter, some physiologists against a too ready acceptance of those conclusions which are based on the action of some drug such as atropine or epinephrine, which is supposed to act only on vagus nerve endings or sympathetic nerve endings. The literature on this subject is such a maze of contradictions that I do not feel like accepting any of the conclusions drawn.

THE SPLANCHNIC NERVES. The main effect of stimulation of the splanchnic nerves is usually an inhibitory one, and there are reasons for believing that much of the paralysis of the digestive tract which is produced by the opening of the abdomen, by painful stimuli anywhere in the body, and by discomfort, worry, and fear is exerted by way of these nerves. In rabbits the mortality after cutting the major splanchnic nerves is much higher than that encountered after cutting the vagi. As one would expect, the bowel in the animals

that survived was overly sensitive to stimuli, and some suffered with diarrhea.

The sympathetic nerve supply to the colon travels by way of rami from the lumbar part of the spinal cord to the inferior mesenteric ganglia and from there by way of the hypogastric nerves to the pelvic plexus. The arrangement varies markedly in different animals and in males and females. Much work needs to be done in this field because it is probable that when the surgeon knows just where to cut he can relieve not only some forms of constipation but perhaps mucous colitis and other painful neuroses of intestinal origin. The pelvic nerves must not be cut because their destruction can lead to serious disturbances in the function of the rectum and of the urinary bladder.

INTRINSIC NERVES OF STOMACH AND BOWEL

There are two ganglionated nervous plexuses in the wall of the digestive tract: one, the myenteric or Auerbach's plexus, is found between the two main coats of muscle, and the other, Meissner's plexus, is found between the muscle and the mucous membrane. The first one probably has much

to do with the conduction of waves along the bowel; it serves to correlate the activity of one segment with another and it acts as a distributing network for those stimuli which arrive by way of the splanchnic and vagus nerves. Some stimulating suggestions in regard to the possible structure of Auerbach's plexus have recently been made by Nolf. He believes that it consists of two relays of neurones: one set arranged like a surveyors chain of links strung along the bowel and presiding over the conduction of stimuli, the other set connecting this chain with the bundles of intestinal muscle.

Meissner's plexus probably serves to correlate the secretory activities of one part of the mucous membrane of the digestive tract with another, and also, through its connections with Auerbach's plexus, to correlate the activity of the intestinal muscle in any one segment with the work that it has to do. When a loop of bowel is distended with food the muscle may be stimulated directly by the increase in tension, but when only a little food is present the muscle may be apprised of the fact by way of the nervous connections between the two plexuses.

LONG DISTANCE CONDUCTION

There is much evidence to show that there are long nervous paths in the mesentery which enable one part of the bowel to keep in touch with what is going on in another part. To a certain extent the digestive tract seems to work under the control of a railroad block system. Food in one region tends to delay the progress of material coming down from above and to hurry the progress of material that lies below. The best known example of this is probably the call to defecation which, in so many persons, comes immediately after breakfast.

HORMONAL INFLUENCES

Besides the nervous influences, there are the so-called hormonal or chemical ones which correlate the activities of different parts of the tract. Some substance produced during the splitting of foodstuffs and absorbed from the lower end of the stomach or from the bowel passes through the blood stream and causes the glands in the mucous membrane of the upper two-thirds of the stomach to secrete. That the mechanism is

not a nervous one was shown by Ivy when he obtained the usual secretion from part of a stomach which he had transplanted into the abdominal wall outside the abdomen. A similar mechanism causes a transplanted piece of pancreas to secrete, and another, perhaps of the same type, causes the gallbladder to contract. Ivy has recently isolated from the intestinal mucosa a substance which in minute doses exerts a powerful stimulating effect on the gallbladder.

Recent physiologic research is suggesting also that when nerves are stimulated they act by producing chemical substances at their tips, substances which then change the activities of muscles or glands.

VOMITING

Vomiting is a complicated act brought about with the help of many nerve paths and a center in the brain. These nerves correlate the activity of the digestive tract with contractions of the diaphragm and the muscles in the wall of the abdomen. The mechanism can be brought into action by stimuli applied to many different parts of the body: to the digestive tract, the

uterus, kidneys, heart, the internal ear, and the brain.

A point that should be borne in mind by the practicing physician is that it is easier to produce vomiting by irritation of the intestine than by irritation of the stomach, and that most of the efforts now made to avoid trouble by coating irritant drugs with salol (so that they will pass untouched into the bowel) are unjustified, irrational, and unnecessary. It should be remembered also that since many of the drugs that possess undesirable nauseating or emetic effects act on the vomiting center, little improvement can be hoped for from purifying them, from injecting them hypodermically or from giving them by rectum.

In some cases one can relieve nausea and stop vomiting by lowering the irritability of the vomiting center. I was once called to see a man who had vomited steadily for four days after an abdominal operation. I gave him 0.5 gm. of barbital sodium hypodermically; he went to sleep, and when he woke he was well and able to eat again. I think it would pay surgeons to use drugs of the barbital type more often than they now do, not only to give patients better

rest, but to lower the irritability of the vomiting center. Morphine, unfortunately, often increases the tendency to vomiting.

AN IMPORTANT POINT

An important point for the physician to remember is that most of the symptoms of gastrointestinal disease are due probably to disturbances in the mechanical functions of the digestive tract. Every experienced practitioner of medicine knows that a carcinoma will often grow quietly for months or years in stomach or bowel, *until it produces obstruction of the lumen*. Then and only then will it produce symptoms. As A. E. Taylor once wrote, we have duplicate plants for chemical digestion but only one muscular tube for the transport of food and its residues. When this is paralyzed or obstructed, or when waves run backward over it we are soon apprised of the fact.

CHAPTER VII
SUGGESTIONS FOR FURTHER
READING

“ . . . Here are the very people of the streets, whom he passes every day, here they are coming to him for help, to him of all men, telling him all about it, how it happened, what it feels like, why they did it: looking to him, right away, for advice and physic. They are no two of them quite alike: and their records, laid before him, range through every intermediate shade from purest white to a nauseating black. He begins to see that he has more to learn than the use of a stethoscope: he must learn lives. The problem of lives exalted, or sunk, or messed away, knocks at his heart.” —Stephen Paget.

CHAPTER VII

SUGGESTIONS FOR FURTHER READING

IF this book ever succeeds as I hope it will, in stimulating the interest of young men in the subject of functional indigestion, some of them will want to read further, and for their benefit I add here a few references to some of the writers who have given me much help and inspiration. When, twenty-three years ago, I began the practice of medicine, I soon saw that there was much that I had to learn besides what was taught me by my professors and by the writers of textbooks. Casting about for help, I was fortunate enough to pick up that delightful volume of Osler's addresses, "Aequanimitas," and to find there word-pictures of the physician as it seems to me he should be: kindly and cultured, and full of wisdom to deal with the human problems of his patients.

SIR WILLIAM OSLER

As Osler says:

The practice of medicine is an art, not a trade;
a calling, not a business; a calling in which your

heart will be exercised equally with your head. Often the best part of your work will have nothing to do with potions and powders, but with the exercise of an influence of the strong upon the weak, of the righteous upon the wicked, of the wise upon the foolish. To you, as the trusted family counsellor, the father will come with his anxieties, the mother with her hidden grief, the daughter with her trials, and the son with his follies. Fully one-third of the work you do will be entered in other books than yours. Courage and cheerfulness will not only carry you over the rough places of life, but will enable you to bring comfort and help to the weak-hearted and will console you in the sad hours when, like Uncle Toby, you have 'to whistle that you may not weep.' [The Master Word in Medicine. Aequanimitas and Other Addresses, p. 386.]

One cannot practise medicine alone and practise it early and late, as so many of us have to do, and hope to escape the malign influences of a routine life. The incessant concentration of thought upon one subject, however interesting, tethers a man's mind in a narrow field. The practitioner needs culture as well as learning. The earliest picture we have in literature of a scientific physician, in our sense of the term, is of a cultured Greek gentleman; and I care not whether the young man labours among the beautiful homes on Sherbrooke Street, or in the slums of Caughnawauga, or in some sparsely settled country district, he cannot afford to have learning only. In no profession does culture count for so much as in medicine, and no

man needs it more than the general practitioner, working among all sorts and conditions of men, many of whom are influenced quite as much by his general ability, which they can appreciate, as by his learning of which they have no measure. [Chauvinism in Medicine. Aequanimitas and Other Addresses, pp. 301-302.]

Nothing will sustain you more potently in your humdrum routine, as perhaps it may be thought, than the power to recognize the true poetry of life—the poetry of the commonplace, of the ordinary man, of the plain, toil-worn woman, with their loves and their joys, their sorrows and their griefs. [The Student Life. *Med. News*, 1905.]

A bookish man may never succeed; deep-versed in books, he may not be able to use his knowledge to practical effect; or, more likely, his failure is not because he has studied books much, but because he has not studied men more. [The Student Life. *Med. News*, 1905.]

The following bit of advice is just as good for patients as it is for us physicians to whom it was given.

A conscientious pursuit of Plato's ideal perfection may teach you the three great lessons of life. You may learn to consume your own smoke. The atmosphere is darkened by the murmurings and whimperings of men and women over the non-essentials, the trifles that are inevitably incident to the hurly-burly of the day's routine. Things cannot always go your way. Learn to

accept in silence the minor aggravations, cultivate the gift of taciturnity and consume your own smoke with an extra draught of hard work, so that those about you may not be annoyed with the dust and soot of your complaints. [The Master Word in Medicine. Aequanimitas and Other Addresses, p. 385.]

Many men have pointed out the value of calmness and strength of character in the physician.

Imperturbability means coolness and presence of mind under all circumstances, calmness amid storm, clearness of judgement in moments of grave peril, immobility, impassiveness, or, to use an old and expressive word, phlegm. It is the quality which is most appreciated by the laity, though often misunderstood by them; and the physician who has the misfortune to be without it, who betrays indecision and worry, and who shows that he is flustered and flurried in ordinary emergencies, loses rapidly the confidence of his patients. [Aequanimitas. Aequanimitas and Other Addresses, p. 4.]

CHARLES DARWIN

About the time I first read Osler's essays I read the "Life and Letters of Charles Darwin" and found there the most instructive description of the troubles of an "asthenic" that I have ever seen. As the reader peruses the following abstracts he

should keep in mind the fact that Darwin lived until he was seventy-three years of age, and that he then died after only a short period of cardiac decompensation. His abdominal organs must therefore have been sound, and his sufferings must have been due to a hereditarily frail nervous system. As I shall show later, an even more severe form of what was probably the same disease affected one of Darwin's uncles, and the tendency was apparently handed on to some of Darwin's children. It cropped out also in his famous cousin, Francis Galton.

Charles Darwin's son, Francis, writes:

. . . It is almost impossible, except for those who watched his daily life, to realize how essential to his well-being was the regular routine that I have sketched: and with what pain and difficulty anything beyond it was attempted. Any public appearance, even of the most modest kind, was an effort to him. In 1871 he went to the little village church for the wedding of his elder daughter, but he could hardly bear the fatigue of being present through the short service. The same may be said of the few other occasions on which he was present at similar ceremonies. [Life and Letters, 1: 105.]

. . . Half an hour more or less conversation would make to him the difference of a sleepless night, and of the loss perhaps of half the next day's work. [Life and letters, 1: 101.]

It is a curious fact that when Darwin wished to have a friend with him over the weekend he often invited two so that if by Sunday morning he should become incapacitated from the excitement of the visit, the two friends could entertain each other.

He writes to A. R. Wallace:

. . . If I could get several of you together it would be less dull for you, for of late I have found it impossible to talk with any human being for more than half an hour, except on extraordinary good days. [More Letters of Charles Darwin, 2: 84.]

On account of his chronic illness Darwin left London shortly after his marriage and settled in the quiet village of Down.

. . . During the first part of our residence we went a little into society, and received a few friends here; but my health almost always suffered from the excitement, violent shivering and vomiting attacks being thus brought on. I have therefore been compelled for many years to give up all dinner-parties; and this has been somewhat of a deprivation to me, as such parties always put me into high spirits. [Life and Letters, 1: 65.]

One of the great complaints of nervous patients is that they cannot stand breaks in routine. This is why a day's vacation

poorly spent is often more tiring than several days of hard work.

. . . I find most unfortunately for myself, that the little excitement of breaking out of my most quiet routine so generally knocks me up, that I am able to do scarcely anything when in London . . . [Life and Letters, 1: 300.]

. . . The other day I went to London and back, and the fatigue, though so trifling, brought on my bad form of vomiting. [Life and Letters, 1: 351.]

The effect on him of public speaking was what one might have expected it to be. In the following letter he refers to a paper read before the Linnean Society in November, 1860.

I by no means thought that I produced a "tremendous effect" on the Linn. Soc., but by Jove the Linn. Soc, produced a tremendous effect on me, for I could not get out of bed till late next evening, so that I just crawled home. I fear I must give up trying to read any paper or speak; it is a horrid bore, I can do nothing like other people. [Life and Letters, 2: 473.]

I do not feel that I shall grapple with the . . . argument till my return home; I have tried once or twice and it has made my stomach feel as if it had been placed in a vice. [More Letters of Charles Darwin, 1: 293.]

. . . Mr. Milne having attacked my theory, which made me horribly sick. [Life and Letters, 1: 329.]

Although, as one would expect, physicians were never able to do much for Darwin—they could not make him over—they apparently were able at times to help him a little, to cheer him, and to win his gratitude. There is much to be learned from the following statement by Sir Francis Darwin:

. . . In later years he became a patient of Sir Andrew Clark, under whose care he improved greatly in general health. It was not only for his generously rendered service that my father felt a debt of gratitude towards Sir Andrew Clark. He owed to his cheering personal influence an often-repeated encouragement, which latterly added something real to his happiness, and he found sincere pleasure in Sir Andrew's friendship and kindness towards himself and his children. [Life and Letters, 2: 526.]

It should be a comfort to the many ambitious "asthenics" to know that in spite of the terrible handicap which prevented Darwin from working more than a few hours a day, he was able to accomplish much: his published volumes fill a fair-

sized shelf, his knowledge of scientific literature was encyclopedic, and as everyone knows, he reached the heights of eminence. All weak persons who are discouraged should take heart, then, as they read the following extract from a letter written by Darwin in his thirty-second year shortly after his return from the voyage of the *Beagle*. His father, it will be remembered, was a physician.

. . . My father scarcely seems to expect that I shall become strong for some years; it has been a bitter mortification for me to digest the conclusion that the "race is for the strong," and that I shall probably do little more but be content to admire the strides others make in science. [Life and Letters, 1: 243.]

In the published *Life* of Darwin's uncle, Tom Wedgwood, one finds the same story of a severe and permanent, and apparently causeless nervous breakdown interfering greatly with the work of a highly gifted man.

By the year 1792 the ill health from which he [Wedgwood] had suffered more or less from childhood had become so constant as to make him unfit for any serious or continuous work . . .

What the ailment was the best medical skill of the time failed to discover. The doctors seem to have generally agreed that it had to do with the digestive system. Some called it a paralysis or semi-paralysis of the colon. Others would call it "hypochondria." The main feature of the disease was the recurrence of fits of depression in which his misery was intense. [Litchfield, R. B. Tom Wedgwood, the First Photographer, pp. 21, 23-24.]

From published family letters one gains the impression that the mental anguish suffered by Wedgwood was almost unbearable. It should perhaps encourage nervous persons to see that in spite of all their suffering Wedgwood and Darwin were able to keep the respect and devoted affection of a large circle of relatives and friends. As anyone knows who has ever read his letters, Darwin was one of the kindest and most lovable of men.

WHY NERVOUS BREAKDOWNS COME

Patients often ask, "But why have I a nervous breakdown?" I haven't had any unusual strain to bring it on. The answer is that, given an inheritance of poor nervous tissue, a breakdown can come at any time and often without apparent cause. We see this in the lives of Wedgwood and Darwin

and Galton; they were all independently wealthy; they never had to work for a living; they were surrounded by devoted relatives, and yet they went to pieces nervously. It should be remembered also that Darwin broke down after years of outdoor life as an explorer and naturalist; one would think that such a life should have given him an iron constitution, but it did not.

In many cases the nervous system seems to be made of poor materials, and like a defective tire, it blows out after a thousand miles instead of after the guaranteed ten thousand. In other cases, especially when the break comes in the latter half of life, I often suspect that it follows a slight unrecognized "stroke;" that is, some vascular injury to one or more small areas in the brain. In other cases there may perhaps have been a slight encephalitis, not severe enough to produce definite sleeping sickness with a mask-like face, but enough to leave the brain crippled for months or years.

Patients often maintain that their trouble cannot be due to nervousness alone because it tends to come in attacks, suddenly and out of a clear sky. This sort of thing has often puzzled me and has made me feel

that in certain cases there must be an extra factor of infection or metabolic disturbance; in some instances I have found infection present, but in many others it seemed to me that the sudden flare-ups in the nervous symptoms were comparable to those that are seen commonly in melancholia and other forms of definite disease of the brain.

OLIVER WENDELL HOLMES

There is much in the writings of Holmes to delight and instruct the young physician interested in the human side of the practice of medicine. He often insisted on the need for cheerfulness and he had much to say about the problem of truth-telling.

We had a physician in our city whose smile was commonly reckoned as being worth five thousand dollars a year to him, in the days, too, of moderate incomes. You cannot put on such a smile as that any more than you can get sunshine without sun; there was a tranquil and kindly nature under it that irradiated the pleasant face it made one happier to meet on his daily rounds. But you can cultivate the disposition, and it will work its way through the surface,—nay, more,—you can try to wear a quiet and encouraging look, and it will react on your disposition and make you like what

you seem to be, or at least bring you nearer to its own likeness.

Your patient has no more right to all the truth you know than he has to all the medicine in your saddle-bags, if you carry that kind of cartridge-box for the ammunition that slays disease. He should get only just so much as is good for him. [Medical Essays, p. 388.]

Once more, let me recommend you, as far as possible, to keep your doubts to yourself, and give the patient the benefit of your decision. Firmness, gentle firmness, is absolutely necessary in this and certain other relations. [Medical Essays, p. 389.]

I cannot help including here Holmes' delightful description of his escape from an undesirable patient.

What I call a good patient is one who, having found a good physician, sticks to him till he dies. But there are many very good people who are not what I call good patients. I was once requested to call on a lady suffering from nervous and other symptoms. It came out in the preliminary conversational skirmish, half medical, half social, that I was the twenty-sixth member of the faculty into whose arms, professionally speaking, she had successively thrown herself. Not being a believer in such a rapid rotation of scientific crops, I gently deposited the burden, commending it to the care of a number twenty-seven, and, him, whoever he might be, to the care of Heaven. [Medical Essays, p. 390.]

RICHARD CABOT

The importance of telling the truth to patients and of studying their environment and its effects upon them has been well treated by Richard Cabot in his thoughtful little book on "Social Service and the Art of Healing." It should be read and pondered by every physician who hopes to be worthy of his profession.

I am not saying that a doctor should explain to every mother in full detail the cause, symptoms, course, and prognosis of her baby's illness. I have never tried that experiment, and I should suppose it would be a very stupid, useless, and probably harmful thing to do. I do not believe in cramming information down people's throats or trying to tell them what they cannot understand properly, any more than I believe in button-holing every acquaintance in the street, and giving him a detailed account of what I consider his faults and failings. [Social Service and the Art of Healing, p. 148.]

I will sum up the results of my experiments with truth and falsehood, by saying that I have not yet found any case in which a lie does not do more harm than good, and by expressing my belief that if everyone will carefully repeat the experiments he will reach similar results.

The technic of truth telling is sometimes difficult, perhaps more difficult than the technic of

lying, but its results make it worth acquiring. [Social Service and the Art of Healing, p. 170.]

A man is not flat like a card. We cannot get the whole of him spread out upon our retina at once. The bit of him which is recorded in the history of his aches, his jumps, and his weaknesses is built into the rest of his life and character like a stone in an arch. To change any part of him appreciably we must change the whole. As well might one try to pick up a man's shadow and carry it away as to treat his physical ills by themselves without knowledge of the habits that so often help to make him sick and the character of which these habits are the fruit. [Social Service and the Art of Healing, pp. 32-33.]

S. WEIR MITCHELL

There is much in S. Weir Mitchell's little book on "*Doctor and Patient*" that is worth reading and studying. Here for instance is one of his beautiful pen pictures of the physician and his work.

The position of the physician who deals with this class of ailments, with the nervous and feeble, the painworn, the hysterical, is one of the utmost gravity. It demands the kindest charity. It exacts the most temperate judgments. It requires active, good temper. Patience, firmness, and discretion are among its necessities. Above all, the man who is to deal with such cases must carry with him that earnestness which wins confidence.

None other can learn all that should be learned by a physician of the lives, habits, and symptoms of the different people whose cases he has to treat. From the rack of sickness sad confessions come to him, more, indeed, than he may care to hear. To confess is, for mysterious reasons, most profoundly human, and in weak and nervous women this tendency is sometimes exaggerated to the actual distortion of facts. The priest hears the crime or folly of the hour, but to the physician are oftener told the long, sad tales of a whole life, its far-away mistakes, its failures, and its faults. None may be quite foreign to his purpose or needs. The causes of breakdowns and nervous disaster, and consequent emotional disturbances and their bitter fruit, are often to be sought in the remote past. He may dislike the quest, but he cannot avoid it. If he be a student of character, it will have for him a personal interest as well as the relative value of its applicative side. The moral world of the sick-bed explains in a measure some of the things that are strange in daily life, and the man who does not know sick women does not know women. [Doctor and Patient, pp. 9-10.]

Mitchell's book on the rest cure: "Fat and Blood and How to Make Them" is a classic which should be in the hands of every gastroenterologist. So far as I know it can now be obtained only from dealers in secondhand books. Following is his

description of one of the ways in which women drift into a nervous breakdown.

. . . A woman, most often between twenty and thirty, undergoes a season of trial or encounters some prolonged strain. She undertakes the hard task of nursing a relative, and goes through this severe duty with the addition of emotional excitement, swayed by hopes and fears, and forgetful of self and of what every one needs in the way of air and food and change when attempting this most trying task; or possibly it is mere physical strain, such as teaching. In another set of cases an illness is the cause, and she never rallies entirely, or else some local uterine trouble starts the mischief, and although this is cured the doctor wonders that his patient does not get fat and ruddy again.

But no matter how it comes about, the woman grows pale and thin, eats little, or if she eats does not profit by it. Everything wearies her,—to sew, to write, to read, to walk,—and by and by the sofa or the bed is her only comfort. Every effort is paid for dearly, and she describes herself as aching and sore, as sleeping ill, and as needing constant stimulus and endless tonics . . . If such a person is emotional she does not fail to become more so, and even the firmest women lose self-control at last under incessant feebleness. Nor is this less true of men, and I have many a time seen soldiers who had ridden boldly with Sheridan or fought gallantly with Grant become, under the influence

of painful nerve-wounds, as irritable and hysterically emotional as the veriest girl. If no rescue comes, the fate of women thus disordered is at last the bed. They acquire tender spines, and furnish the most lamentable examples of all the strange phenomena of hysteria.

The moral degradation which such cases undergo is pitiable . . . I have seen a few people who were ennobled by long sickness, but far more often the result is to cultivate self-love and selfishness and to take away by slow degrees the healthy mastery which every human being should retain over her own emotions and wants.

There is one fatal addition to the weight which tends to destroy women who suffer in the way I have described. It is the self-sacrificing love and over-careful sympathy of a mother, a sister, or some other devoted relative. Nothing is more curious, nothing more sad and pitiful, than these partnerships between the sick and selfish and the sound and over-loving. By slow but sure degrees the healthy life is absorbed by the sick life, in a manner more or less injurious to both, until, sometimes too late for remedy, the growth of the evil is seen by others.

. . . To cure such a case you must morally alter as well as physically amend, and nothing less will answer. The first step needful is to break up the companionship, and to substitute the firm kindness of a well-trained hired nurse. [Fat and Blood, pp. 29-32.]

It is rare to find any of the class of patients I have described so free from the influence of their

habitual surroundings as to make it easy to treat them in their own homes. It is needful to disentangle them from the meshes of old habits and to remove them from the contact with those who have been the willing slaves of their caprices. I have often made the effort to treat them in their own homes and to isolate them there, but I have rarely done so without promising myself that I would not again complicate my treatment by any such embarrassments. Once separate the patient from the moral and physical surroundings which have become part of her life of sickness, and you will have made a change which will be in itself beneficial, and will enormously aid in the treatment which is to follow. [Fat and Blood, p. 36.]

JOHN BROWN

Is it or is it not strange that the few practicing physicians who have made a reputation for themselves in the world of letters have given us our most beautiful and our most instructive guide books to the human side of the practice of medicine? I have quoted thus far from Osler, Holmes, and Mitchell. Another writer of beautiful English was Dr. John Brown, who long ago endeared himself to all dog lovers by telling the story of "Rab and His Friends." The first volume of Brown's "Horae Subsecivae" (Spare Hours), which deals with

problems of medical practice, is well worth reading today. Again and again he emphasized the value of cheerfulness in the sick room.

. . . Moreover, let me tell my young doctor friends, that a cheerful face, and step, and neck-cloth, and button-hole, and an occasional hearty and kindly joke, a power of executing and setting agoing a good laugh, are stock in our trade not to be despised. The merry heart does good like a medicine. [Horae Subsecivae, p. lv.]

Well, then, it is the duty of the Doctor in the first place, to *cure us*; in the second, to *be kind to us*; in the third, to *be true to us*; in the fourth, to *keep our secrets*; in the fifth, to *warn us*, and, best of all, to *forewarn us*, in the sixth, to *be grateful to us*; and, in the last, to *keep his time and his temper*. [Horae Subsecivae, p. 407.]

FRANCIS W. PEABODY

The best recent article on the human problems involved in the practice of medicine is doubtless the one by Peabody of Harvard, written as the stern hand of death lay on his shoulder. Some time after I had written the preface to this volume I became fearful that perhaps my indictment of present-day medical education was too strong, but on turning again to Peabody's

article I found there all that I had tried to say expressed more forcibly and more authoritatively:

To begin with, the fact must be accepted that one cannot expect to become a skilful practitioner of medicine in the four or five years allotted to the medical curriculum. Medicine is not a trade to be learned but a profession to be entered. It is an ever-widening field that requires continued study and prolonged experience in close contact with the sick. All that the medical school can hope to do is to supply the foundations on which to build. [The Care of the Patient, p. 9.]

Here, then, is a great group of patients in which it is not the disease but the man or the woman who needs to be treated. In general hospital practice physicians are so busy with the critically sick, and in clinical teaching they are so concerned with training students in physical diagnosis and attempting to show them all types of organic disease, that they do not pay as much attention as they should to the functional disorders. Many a student enters upon his career having hardly heard of them except in his course in psychiatry, and without the faintest conception of how large a part they will play in his future practice. At Best, his method of treatment is apt to be a cheerful reassurance combined with a placebo. [The Care of the Patient, p. 33.]

The physician who speaks of the care of patients is naturally thinking about circumstances as they

exist in the practice of medicine; but the teacher who is attempting to train medical students if immediately confronted by the fact that, even is he would, he cannot make the conditions under which he has to teach clinical medicine exactly similar to those of actual practice. [The Care of the Patient, p. 11.]

Everybody, sick or well, is affected in one way or another, consciously or subconsciously, by the material and spiritual forces that bear on his life, and especially to the sick such forces may act as powerful stimulants or depressants. When the general practitioner goes into the home of a patient, he may know the whole background of the family life from past experience; but even when he comes as a stranger he has every opportunity to find out what manner of man his patient is, and what kind of circumstances make his life. He gets a hint of financial anxiety or of domestic incompatibility; he may find himself confronted by a querulous, exacting, self-centered patient, or by a gentle invalid overawed by a dominating family; and as he appreciates how these circumstances are reacting on the patient he dispenses sympathy, encouragement, or discipline. What is spoken of as a "clinical picture" is not just a photograph of a man sick in bed; it is an impressionistic painting of the patient surrounded by his home, his work, his relations, his friends, his joys, sorrows, hopes, and fears. [The Care of the Patient, pp. 14-15.]

The point made in the following paragraph is an important one. Most of us

human beings have at some time suffered for a few hours or days the tortures of anxiety over a loved one who was critically ill, or perhaps it was jealousy, a family row, a crash in the stock market, a note coming due, a broken engagement, or an important law suit. Whatever it was, just imagine that sort of anxiety or painful emotion continued day in and day out for months, and the reason for many illnesses will become apparent.

Everyone accepts the relationship between the common functional symptoms and nervous reactions, for convincing evidence is to be found in the fact that under ordinary circumstances the symptoms disappear just as soon as the emotional cause has passed. But what happens if the cause does not pass away? What if, instead of having to face a single three-hour examination, one has to face a life of being constantly on the rack? The emotional stimulus persists, and continues to produce the disturbances of function. As with all nervous reactions, the longer the process goes on, or the more frequently it goes on, the easier it is for it to go on. The unusual nervous track becomes an established path. After a time, the symptom and the subjective discomfort that it produces come to occupy the center of the picture, and the causative factors recede into a hazy background. The patient no longer thinks, "I cannot stand this

life," but he says out loud, "I cannot stand this nausea and vomiting. I must go to see a stomach specialist." [The Care of the Patient, pp. 29-31.]

The following short statement is, unfortunately, only too true. The making of positive but unwarranted diagnoses is one of the deadliest sins committed by the medical profession. Ten negative Wassermann reactions cannot be counted on to destroy the harm done by the report of one false positive one.

. . . You will find that physicians, by wrong diagnoses and ill-considered statements, are responsible for many a wrecked life, and you will discover that it is much easier to make a wrong diagnosis than it is to unmake it. [The Care of the Patient, p. 44.]

WILLIAM FALCONER

That these ideas of Peabody and Osler and Holmes are not new will be seen from a perusal of Falconer's interesting "Dissertation on the Influence of the Passions upon Disorders of the Body" published in 1788. There we find that:

It is not, . . . , sufficient for a physician merely to possess a humane disposition and benevolent intentions. It is necessary that he should render it

apparent in every part of his conduct towards the sick, that he not only possesses these virtues, but that he studies to exercise them in the mildest and most agreeable manner. "Gentleness of behavior, says an elegant and humane writer, makes the approach of a physician be felt like that of a guardian angel, sent to afford ease and comfort, whilst the visits of the rough and unfeeling resemble those of a minister of vengeance and destruction. [A Dissertation on the Influence of the Passions upon Disorders of the Body, pp. 94-95.]

CLIFFORD W. BEERS

There are many reasons why every physician should read Beers' remarkable book on "A Mind that Found Itself." Medical practitioners often seem to assume that the psychopathic or hysterical patient is a nonentity or a sort of imbecile who cannot grasp what is being said in the room during a consultation. As Beers clearly shows, even the insane can take in everything that is said; they reason about it; they react to it; they resent disrespect shown them, and they often remember everything after they have recovered. If this is true for the definitely insane how much more true must it be for those who are only psychopathic or hysterical.

. . . I have already suggested that an insane person should be treated as sane in all the ways that are possible. It is a mistaken delicacy of feeling which impels doctors and others in charge to avoid any direct reference to a patient's insanity in the presence of the patient himself. I believe it would have mitigated my distress to have been told in plain English that I was insane and had, because of that condition, attempted suicide. To be sure I should perhaps have regarded those about me as suffering under a strange delusion, but I believe that the reason for their behavior would have wormed its way into my understanding months earlier than it did. [A mind that Found Itself, p. 43.]

Most sane people think that no insane person can reason logically. But this is not so. Upon unreasonable premises I made most reasonable deductions, and that at the time when my mind was in its most disturbed condition . . . During the seven hundred and ninety-eight days of depression I drew countless incorrect deductions. But such as they were they were deductions, and the mental process was not other than that which takes place in a well-ordered mind. [A Mind that Found Itself, p. 54.]

. . . And it is now clear to my judgment that the most trifling promise, direct or implied, made under such circumstances, should, if possible, be carried out to the letter. This question I have since discussed with alienists, all of whom agree with me. [A Mind that Found Itself, p. 29.]

JANE HILLYER

The extreme hypersensitiveness of some nervous persons is well pictured in the following extracts from Jane Hillyer's remarkable account of her recovery from a period of insanity.

. . . Solitude, long deep drafts of it, was a complete necessity for months. I was like a radio station receiving any number of new and startling messages. My only chance of release was to be alone . . .

Not only were my surroundings largely new—because of many changes—but I was new to myself. My reactions were entirely different. Things that I would never have noticed before cut into me like a knife: sounds, smells, mechanical adjustments, telephones, street cars with various and sundry different kinds of entering contrivances, the latest can opener, the most modern toothpaste top. [Reluctantly Told, pp. 170–171.]

H. A. OVERSTREET

The young physician beginning to build up his practice may think that the days of difficult and momentous examinations are over but he is wrong; the hardest ones lie ahead. Soon he is to be examined by his patients not only as to his medical knowledge but also as to his tact and his fitness

as a man and a leader. I once knew a physician who "flunked" in an important case simply because his collar was torn back for a quarter of an inch on each side. The woman who gave him an "F" was apologetic about it; she was satisfied that he knew the technical side of his business but as she told me afterward, she felt sure that a man who, in his position, could do such a foolish thing must have poor judgment in other matters.

I have known also several gifted men who missed getting a coveted professorship only because they were so careless about their personal appearance and about some of the conventions of social usage. Osler used to say laughingly that before he was given the chair of medicine at the University of Pennsylvania a committee took him to dinner and watched him eat cherry pie. He passed the examination and got the appointment! There is much food for thought in this little joke, and every practitioner of medicine would do well to read a recent book by Overstreet on "Influencing Human Behavior." We are all of us each day trying to influence human behavior and we might as well begin by learning some-

thing of what scientific investigators have discovered about the game.

One of my reasons for wishing that medical men would read Overstreet is that if they were ever to grasp his message they would never again get up on a platform and, with nose in manuscript, drone on for a half hour or more, utterly oblivious to the audience before them. That is not the way to influence human behavior.

As Overstreet says, much depends on the method of approach:

Like begets like. It is most important, therefore, that the person who wishes to influence others should ask himself in what ways he is unconsciously influencing them himself—by his appearance, his voice, his manner, his attitude. For we influence very largely in ways far more subtle than we suspect. We shake hands; and instantly we are condemned. Too limp! We speak with raspy, querulous voice; and our auditor is all on edge to get us out of the room. We make a timid approach; and we are turned down flat. We make a boastful approach; and we arouse the bristling egoism of our listener. We proceed with a frank, cheerful manner; and we get frank cheerfulness in return. [Influencing Human Behavior, p. 15.]

Overstreet's book "About Ourselves" would be a good one to hand to many patients to show them where they are making mistakes and where they could improve their mental habits.

Here is his idea of how a physician should practice:

. . . He does not look at you with professional superiority, write out a prescription and order you to do thus and so. Rather he talks your case out with you; lets you yourself get to the bottom of some of your difficulties and suggest some of the things you can do. He builds up your self-respect, helps to make you, in a measure, physician to yourself. [About Ourselves, pp. 270-271.]

Many non-technical books have of late been written with the idea of helping patients with nervous troubles. Some are doubtless good but I cannot recommend them because I have not had time to read them carefully. The student may learn much about them from an article by E. J. Brown (see bibliography).

One book that I enjoyed years ago was King's "Rational Living." It is a mine of information and well worth reading today. I append two extracts from it.

. . . "A man's efficiency, then, depends upon his habits of mental thrift." Men evidently vary considerably in the promptness with which the nerve-cells recover from fatigue. Every man must find for himself his best periods of work and rest; but having found his individual law, he should remember that there is no gain but only loss in work undertaken contrary to that law. [Rational Living, pp. 73-74.]

Dr. Corning's rules for those of scanty mental reserve power enjoin avoidance of "(1) excessive emotion, (2) of frantic attempts to accomplish in one hour work appropriate to two, (3) of every species of excess which experience has proved leads to general constitutional drain, (4) of attempting to do two things at one and the same time, (5) of petty engagements which interfere with sleep." But every one of these rules calls for the exercise of will power. [Rational Living, p. 82.]

FATIGUE

The key to the understanding of many nervous states must, I think, be secured through a better knowledge of fatigue. For this reason the physician will do well to read the books of Mosso and Goldmark on the subject. Fatigue is perhaps the greatest cause of nervous disease today and yet it has seldom been studied by medical men; it is rarely mentioned in medical

writings, and so far as I know, no one ever lectures about it in medical schools.

THE SUCCESS OF IRREGULAR PRACTITIONERS

Physicians who are sometimes puzzled over the great success that ignorant men and women often have in the treatment of functional diseases should read an excellent article by Nichols (see bibliography). There they will learn much that can be of value to them. As he says:

The accomplishment of cures in itself alone is no proof of the truth of any theory of healing. The most ignorant persons and the most indifferent methods may be efficient vehicles of psychotherapy. The psychic efficiency of a system may indeed be quite proportionate to its falsity, since ignorance may engender an enthusiasm and fervor which the materialistic and skeptical physician is unable to evoke. Some persons are natural healers, endowed with innate ability to inspire fervid psychotherapeutic faith. Many such are in the ranks of the regular medical profession, and may have a vogue and popularity disproportionate to their scientific attainments. Others arise from the laity, achieve an enormous influence and following, found schools with multitudes of adherents, and in spite of the error and harm in their systems bring much relief and comfort to humanity.

. . . The ancient association of medicine with the priesthood had a profound significance, and

medicine must still cultivate the priestly element, the element that reaches the heart of humanity, if it would attain its fullest influence and usefulness . . .

The general interests and resources of the profession are more complete on the physical and material side than on the psychic side, and to a large extent we are deficient in the application of psychotherapy. We lack sympathy with and interest in our numerous patients with psychogenetic disorders; we are impatient with their multitudinous complaints; we have no effective treatment to offer them; we are glad to be rid of them. We cannot blame them if they turn to sectarian practice. These sufferers are just as miserable as if they had organic disease, and if relief is possible they are equally entitled to it. If they derive benefit from the sectarians after looking to us in vain, we have failed in what should be an appropriate field for our activities. If we cultivated that field properly, if we utilized psychotherapy rationally and adequately, or if we developed experts and specialists to attend to that class of practice, we would, by retaining its clientele, go far toward abolishing medical sectarianism.

As Tuke points out, these same facts were observed and commented on even in ancient times. Every physician should read Lucian's delightful story of the quack Alexander, who so cleverly set the stage for

founding a miracle-working shrine in which he could later fatten off of the credulity of the sick.

. . . It is in regard to such cases (whether hysterical, or the remains of old disease) that Burton's pithy observation is but too true: "An empirick oftentimes, or a silly chirurgeon, doth more strange cures than a rational physician. Nymannus gives a reason because the patient puts his confidence in him, which Avicenna prefers before art, precepts, and all remedies whatsoever. 'Tis opinion alone (saith Cardan) that makes or mars physicians; and he doth the best cures, according to Hippocrates, in whom most trust. [Influence of the Mind upon the Body, p. 343.]

HIPPOCRATES

I include here the following quotation from the Father of Medicine in the hope that it will be read by some of those dietitians who nowadays insist on stuffing even the weakest of invalids with rough and indigestible food. It is interesting to find so clearly stated the fact that some persons can eat such food while others cannot. It will be noted also that there is some adumbration of Darwin's idea of the survival of the fittest.

But to go still further back, I hold that the diet and food which people in health now use would not have been discovered, provided it had suited with man to eat and drink in like manner as the ox, the horse, and all other animals, except man, do of the productions of the earth, such as fruits, weeds, and grass; for from such things these animals grow, live free of disease, and require no other kind of food. And, at first, I am of opinion that man used the same sort of food, and that the present articles of diet had been discovered and invented only after a long lapse of time. For when they suffered much and severely from this strong and brutish diet, swallowing things which were raw, unmixed, and possessing great strength, they became exposed to strong pains and diseases, and to early deaths. It is likely, indeed, that from habit they would suffer less from these things than we would now, but still they would suffer severely even then; and it is likely that the greater number, and those who had weaker constitutions, would all perish; whereas the stronger would hold out for a longer time, as even nowadays some, in consequence of using strong articles of food, get off with little trouble, but others with much pain and suffering. From this necessity it appears to me that they would search out the food befitting their nature, and thus discover that which we now use: and that from wheat, by macerating it, stripping it of its hull, grinding it all down, sifting, toasting, and baking it, they formed bread . . . [The Genuine Works of Hippocrates, pp. 133-134.]

ROBERT LOUIS STEVENSON

Sometimes when I get a bit discouraged over the shortcomings of my profession I like to turn to Stevenson's beautiful tribute, and with Osler, I like to believe that much of it is true.

There are men and classes of men that stand above the common herd: the soldier, the sailor, and the shepherd not infrequently; the artist rarely; rarelier still, the clergyman; the physician almost as a rule. He is the flower (such as it is) of our civilization; and when that stage of man is done with, and only to be marveled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Heracleian cheerfulness and courage. So that he brings air and cheer into the sick room, and often enough, though not so often as he wishes, brings healing. [Preface to *Underwoods*.]

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